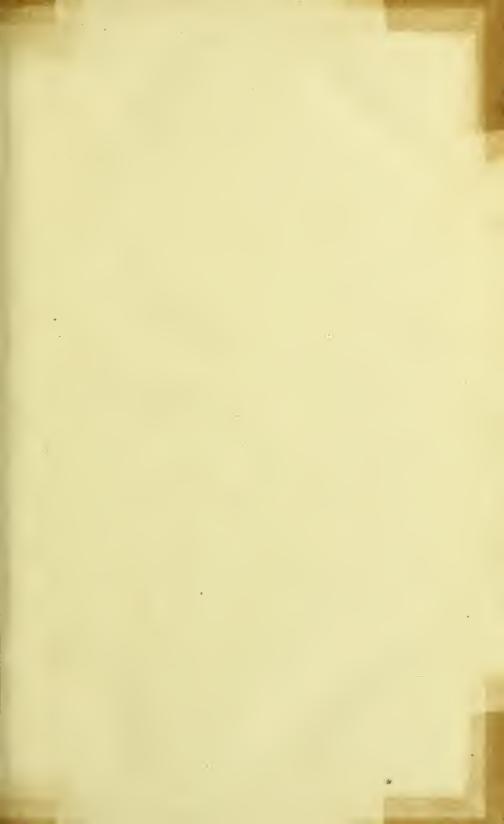
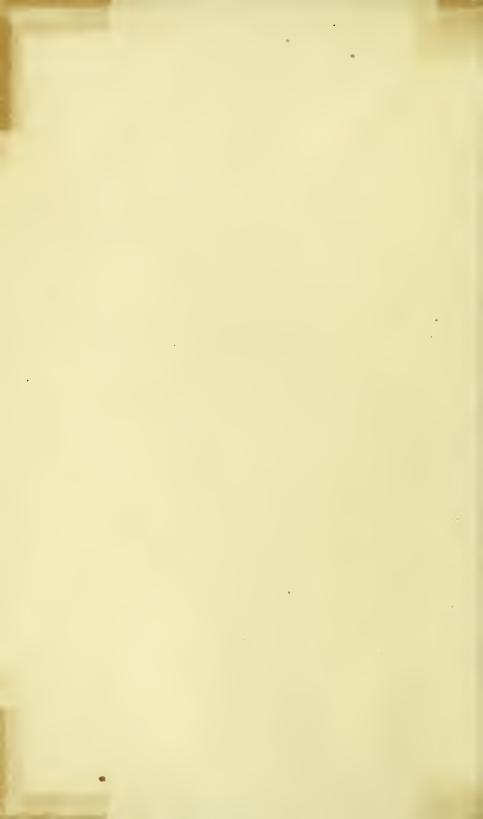


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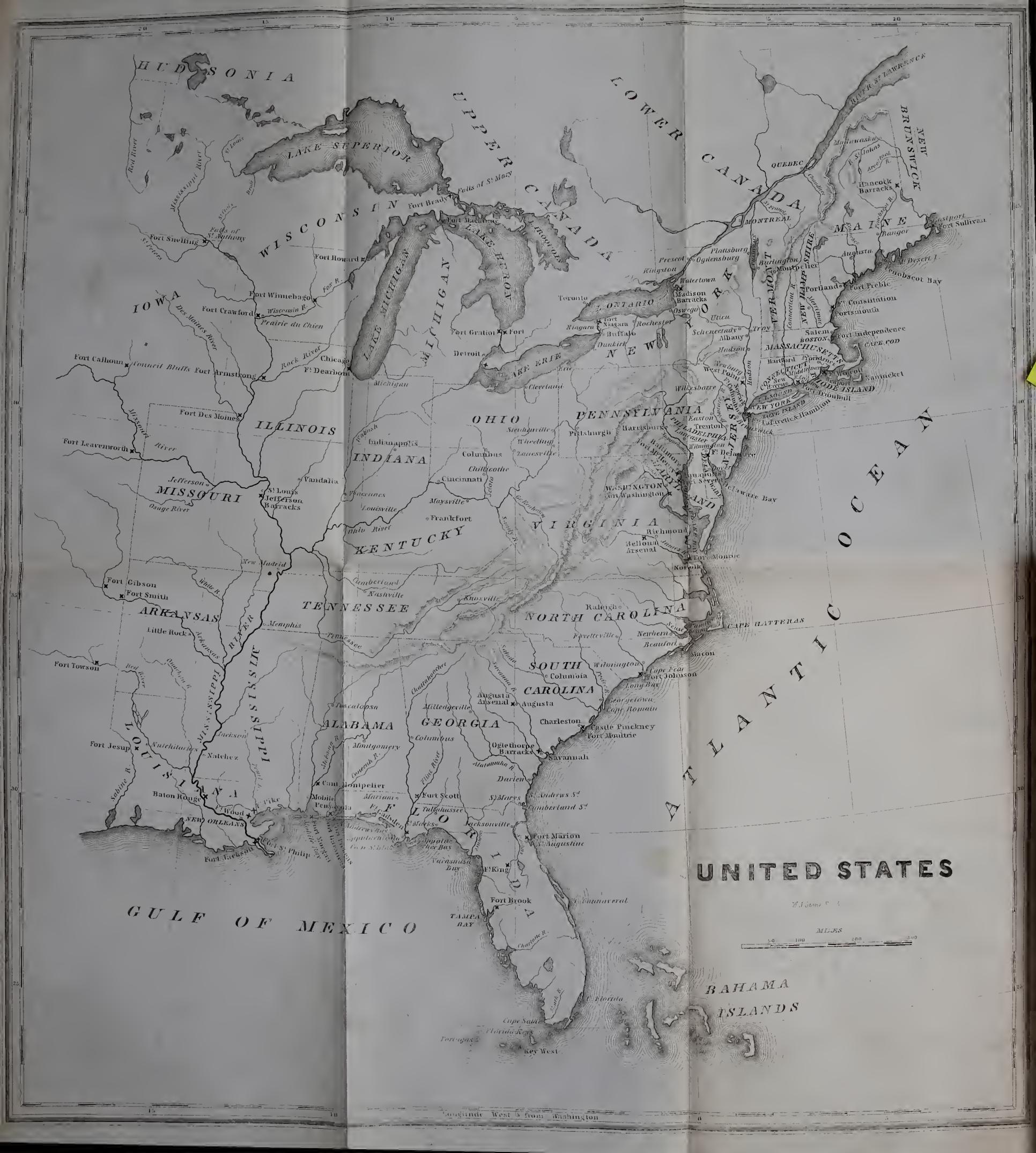






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## STATISTICAL REPORT

ON THE

# SICKNESS AND MORTALITY

IN THE

#### CETATE DETINU CIET TO YMEA

COMPILED FROM THE RECORDS OF THE SURGEON GENERAL'S AND ADJUTANT GENERAL'S OFFICES—EMBRACING A PERIOD OF TWENTY YEARS, FROM JANUARY, 1819, TO JANUARY, 1839.

PREPARED UNDER THE DIRECTION OF

## THOMAS LAWSON, M. D.

SURGEON GENERAL.

Published for the use of the Medical Officers of the Army of the United States.

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THE MATTER C	CONTAINED IN T	HE FOLLOWING	PAGES WAS C	OLLATED AND
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#### INTRODUCTION.

The following pages are devoted to the investigation of the comparative influence of various systems of climate upon the organization of man—a subject which engaged the attention of the father of physic himself, in his treatise on "Air, Water, and Situation." The medical literature of almost every country abounds with medico-topographical descriptions of particular localities; but the mere accumulation of facts of this kind, unless systematically arranged can avail but little in determining the operation of physical causes upon the human constitution. In observing the phenomena of nature, the view of the individual practitioner is here restricted to narrow boundaries; and as these various and complicated facts have been but partially generalized, the laws of nature in regard to these external influences upon the healthy and diseased condition of man are often sadly misinterpreted.

For the period of twenty years, quarterly reports of diseases among the regular troops have been uninterruptedly made to the Medical Bureau of the United States Army; thus affording the means, in connexion with the returns in the Adjutant General's Office, not only to investigate morbid action by the numerical method, but to show its relation with climate. As these diversified facts admit of classification according to certain geographical limits, the results, it is hoped, will furnish some general laws towards the basis of a system of medical geography.

This report consists of a collection of facts in relation to the medical topography of the military posts, and the vital statistics of the troops extending over a period of twenty years. The general conclusions have been arrived at through a process of statistical investigation, and the accompanying remarks are the result of the experience and observation of individuals whose official duty it was to study the local features of certain regions, to investigate the causes of their diseases, and to analyze and describe them.

The diseases incident to armies present an extensive field for observation. The advantages offered in the Revolutionary war, and in our second struggle with Great Britain, were but slightly improved. Excepting the "Medical Sketches" of Surgeon Mann, and a few remarks interspersed in the works of Dr. Rush, we are almost entirely ignorant of the medical history of these two eventful periods. Military hygiene—the knowledge of maintaining the health

of soldiers, and of promoting their efficiency—is another subject which should not only be carefully studied by medical and all other officers, but receive the special attention of Government.

In the arrangement of these statistical materials, the subject has been divided into two parts, each embracing the period of ten years. In the former, the numerical mode of investigation, in default of the requisite data in regard to the mean strength of each post, prior to 1829, is carried out only in part; but in the latter period, all the advantages afforded by this method of analysis has-been realized. The extent of labor in preparing these papers may be inferred from the single fact that it was necessary to examine about 4,000 quarterly sick-reports, (a majority of which have been condensed into abstracts,) and to obtain from the Adjutant General's Office the mean strength for corresponding periods, compiled from the post and regimental returns.

In the brief topographical descriptions of the posts, due allowance will be made by those having the personal knowledge derived from a residence at a station, for the difficulty attending a compilation from statements made by different individuals and at different periods. As this report exhibits a condensed view of the labors of the majority of the medical officers belonging to the army for a period of twenty years, it is impracticable to acknowledge the collator's obligation to each one individually. He, therefore, avails himself of this opportunity of expressing to them generally his indebtedness for the valuable data afforded by their quarterly reports. To the late Surgeon General, much credit pertains for having organized a system of returns, rendering it feasible to condense the results of so long a period into the form now presented.

SURGEON GENERAL'S OFFICE, April, 1840.

#### PART I.

In entering upon the annual details, it may be necessary to remark, that in this part it is intended to give merely an outline of the medical history of each year, descending in no instance to the consideration of specific cases unless warranted by unusual circumstances. The object aimed at is, to exhibit more especially the peculiar character of the diseases which prevail in wild and newly cultivated countries, and to bring under notice several affections, which, with the exception of the army, are little met with in our country, such as scurvy and the poisonous effects of lead. Military hygiene, or the art of preserving the health of soldiers and of promoting their efficiency under all circumstances, will receive attention. As no attempt will be made to enter deeply into the pathology of disease, censoriousness may possibly be disarmed by stating that no medical officer in making an official report, supposed that it would ever be applied to its present use. To the army Surgeon at least, it is believed that the facts embodied will prove of some value. Nearly all conclusions derived from statistical results have been reserved for the second part.

During the first five years embraced in this report, the features of morbid action in general were characterized by unusual severity. Independently of ordinary observation, this fact, so far as the data extend,

is established by numerical results.

The aggregate of cases and deaths presented in the reports of the first quarter of this year, is comparatively small, no disease being sufficiently prevalent to require comment. At Forts McHenry and Severn, (Baltimore and Annapolis,) however, "a violent bilious colic," remarks the Surgeon General, "attended with frequent attacks of inflammation of the brain, terminating in delirium, apoplexy, and death, has prevailed for the last year." At Fort Severn no satisfactory cause could be assigned, independently of the local peculiarities of position; whilst at Fort McHenry, the men are represented as excessively addicted to the vice of intemperance. Dr. Stewart, who had resided many years at Baltimore, regarded it as a new modification of disease. It was looked upon as one of those inscrutable results, which, by the fortuitous concurrence of circumstances, are developed from time to time; and, which, in the infinite series of such contingencies, may never again occur. It will be seen, however, that this disease, which continued to harass these two garrisons for several years, finally received a rational explanation.

In the southern division of the army, the usual diseases of our troops, intermittents, diarrhea, and dysentery, prevailed; but the cases reported were generally of a mild character, and controllable by ordinary remedies.

The reports for the quarter ending the 30th June, exhibit nothing peculiar. Pulmonary consumption and intemperance are as usual the active causes of death among the troops. The deaths from these two causes, as in our bills of mortality, it will be seen, constantly present a heavy item. In this quarter, out of twenty-three deaths, nine are traced directly to an excessive use of ardent spirits, whilst others doubtless were owing indirectly to the same cause. The Surgeon General embraced this occasion to impress upon the Secretary of War the importance of striking the whiskey altogether from the ration, and substituting an equivalent in vegetables or sugar and coffee; but it was not until the administration of Mr. Cass, in 1830, although its necessity was frequently urged, that an order was promulgated directing that "the commissaries shall cease to issue ardent spirits as a part of the daily ration of the soldier."

The total of cases and deaths reported for the quarter ending the 30th September, was unusually large. The principal diseases were fevers of the synochal, intermittent, and remittent type, and diarrhea and dysentery. Under the first form of fever is included, the typhus which prevailed at the north; and under the last, the bilious remittent or yellow fever, which appeared in many of our cities, on the sea-board, and even as far west as the Missouri. In the southern division, intermittents and remittents, in their common form, were unusually prevalent; and at most places, more especially along the borders of Florida, attended with much hepatic derangement. Dysentery was also presented in a character of more than ordinary severity and fatality. The sick reports of all the military stations from the Atlantic to the Mississippi, showed in general a high ratio of disease, the symptoms were for the most part

severe, and the average of fatal cases proportionably high.

Some facts of an interesting and valuable character, in relation to yellow fever, are interspersed through the quarterly reports. It may be regarded as a singular concurrence of opinion, coming, as it does, from individuals so remotely situated and viewing the subject under such various circumstances, that the belief in its contagious nature, has been in no instance avowed. The doctrine that intermittent, remittent, and yellow fever, assume, according to circumstances, more or less the type of one another, seems to be extensively entertained. Believing them to arise from similar causes, variously modified, to assail the system through the same avenues, and to require the same general treatment, these fevers are regarded by this class of reasoners as essentially the same, modified by the intensity of the cause, and peculiarity of consti-This position is strongly confirmed by the oft observed fact, that the natives of our southern cities, in which yellow fever is endemical, possess, in a great measure, an exemption from this malady; for, whilst intermittents and mild remittents prevail among the old inhabitants, yellow fever often manifests itself so exclusively among those

lately arrived from northern latitudes, that it has received the name of "Strangers' Fever." We are certainly not justified, however, in the present state of our knowledge, to assert that the same miasm, which produces remittent fever, excites, in its more virulent state, yellow fever,

or, indeed, that the latter is of paludal origin.

The opinion of the origin of yellow fever, from miasmatic effluvia, seems to be strongly corroborated by the following facts: 1. Yellow fever always appears simultaneously with bilious remittents; 2. a high range of atmospheric temperature is essential to the generation of its cause; 3. its first appearance is always in the lowest and most filthy parts of towns, and in localities favorable to the production of miasmata; and, 4. the supervention of storms, heavy rains, or cold weather, puts an immediate check to its progress. These views are sustained by the most experienced writers on the subject. It is remarked by Dr. Kush, in relation to the yellow fever of Philadelphia, in 1802, that "intermittents, the mild remittent, the inflammatory, bilious, and the malignant yellow fever, have, in many instances, all run into each other." Speaking of the yellow fever of the same city in 1803, Dr. Caldwell observes, "as the fever receded from the low ground, and malignant atmosphere of Water street, it became more and more mild and manageable, till its evanescent shades in Second street were, in many instances, much lighter than the common remittent of the country." In the vellow fever of Charleston in 1804, Dr. Ramsay says, "neglected intermittents frequently terminated in yellow fever." In regard to Baltimore, Dr. Davidge states that "the bilious or remitting fever, in its ordinary form, prevailed in that town, and continued until it was gradually lost in the severer form of yellow fever as the season advanced." That the disease was in none of these epidemics, imparted or communicated by contagion, all these writers unanimously agree.

At New Orleans, the experience of almost every year exemplifies the same fact. Situated on a mighty river's bank, formed of the alluvion of its own current, this emporium may be regarded as a healthy locality during nine months of the year. As the summer temperature increases, yellow fever appears almost with the certainty of the varying seasons, and disappears as regularly when the scale of the thermometer indicates its decrease. Although steamers laden with fugitives from malarious pestilence, ascend the stream by hundreds at this period; yet the disease, notwithstanding the fatal black vomit appears on the decks as they pass along, is never manifested among fellow-passengers from uninfected regions; nor is it, under like circumstances, communicated to the inhabitants of the district to which they may fly. It is, therefore, purely a

disease of season and locality.

Although we are not quite certain that fevers which have, or are supposed to have, their source in vegetable miasms, or in effluvia from marshes, never subsequently spread by contagion; yet yellow fever, as developed in our northern cities, even when engendered in the holds of ships navigating in hot climates, is known not to have been communicated. A cause of this kind would no doubt fall harmless upon the inhabitants of a salubrious country locality. To develope this ma-

lignant fever, seems to require the conjoint operation of both local and general causes, constituting an endemico epidemic; and in the summer atmosphere of a crowded city, there appears to exist some peculiar agency favoring this result. In these cases, there is generally found an "infected district," which slowly and regularly extends its boundaries, rendering all who come within its limits, subject to this form of fever.

In our northern cities, this has been repeatedly observed.

That yellow fever requires for its development a high atmospheric temperature, is illustrated in the island of Jamaica, which has almost every variety of climate. As you ascend its lofty range of mountains, the vegetation of the tropics gives place to that of temperate regions. Whilst the scourge of yellow fever cuts off its thousands annually along the coast of this island, a complete immunity is enjoyed from its effects in these elevated regions. It has never been known, as determined by the researches of Humboldt, to extend, in any climate, beyond the height of 2,500 feet. The pallid and sickly aspect of those residing in the low districts, forms a striking contrast to the ruddy glow of health

which characterizes the dwellers in the mountain region.

The question of the contagiousness of yellow fever, was, at this period, (1819) a theme of interminable discussion and acrimonious controversy. Although considerable discrepency of opinion continued to obtain, the mass of the profession finally received as established doctrines, that yellow fever is, strictly speaking, endemico-epidemic, that its origin may always be traced to a combination of atmospheric and local causes, and that it is unsusceptible of propagation by specific contagion. The experience of several centuries teaches us that the cause of this fever is perennially present in our southern cities. Indissolubly connected with our soil and climate, it maintains the same relation towards the animal system as the malaria of our southern low lands. Appertaining to geographical position, this dreadful malady, in different grades of intensity, is liable to be developed at any time by the combined operation of heat and other agents.

As yellow fever, as is stated in the Surgeon General's quarterly report, made its appearance, this season, simultaneously at many points remote from one another, at some of which, importation may be regarded as impracticable, its domestic or miasmatic origin would seem beyond the possibility of a doubt. In the summer of this year, the waters of the Missouri and Mississippi were remarkably low, and all those circumstances obtained which favor the evolution of miasmatic emanations. Consequently, a bilious remittant fever of a malignant tendency became epidemic both in Missouri territory and the State of Illinois. Although it generally assumed a milder form than on the seaboard, owing to the circumstance that the morbific agents were less concentrated than in the filthy streets and wharves of populous cities; yet, many of the cases reported had the characteristic features of typhus icterodes so decidedly marked, that the Surgeon General entertained no doubt of the identity of the disease.

Its present appearance on the banks of the Missouri and Mississippi confirms the report of its existence, in former years, on the Ohio, in localities peculiarly favorable to the production of malaria. The celebrated Voluey, who had seen the disease in our sea-ports, found, during his travels through the interior, the vellow fever in many places. Miller, of New York, in his excellent essay on yellow fever, refers to the journal of a voyage down the Ohio in 1796, by Mr. A. Ellicott. This judicious observer was a witness, at Gallipolis, inhabited by some miserable French families, to the disease, which raged violently, the fatal cases being generally attended with the symptom of black vomit. "The fever could not," he says, "have been taken there from the Atlantic States, as my boat was the first that descended the river after the fall of the water in the spring. Neither could it have been taken from New Orleans, as there is no communication up the river at that season [This was prior to the era of steam-boats.] Moreover, the distance is so great, that a boat would not have time to ascend the river. after the disorder appeared that year in New Orleans, before the winter would set in." In 1797, the disease appeared at New Design, 15 miles from the Mississippi and 20 from St. Louis, and carried off more than one-fourth of the inhabitants, although no person, during the preceding twelve months, had come to this village from any place at which the malady prevailed. As these facts are attested by Dr. Watkins, who had seen the disease in Philadelphia, and as an identity of disease supposes an identity of cause, it is shown indisputably that fevers with the pathognomonic features of typhus icterodes, do occur in positions which forbid the assumption of importation.

In the last quarter of the year, diseases were of a mild character. In the northern division, the total of deaths reported in the medical returns was 42, one-half of which occurred in a detachment of the 5th Infantry, stationed at the mouth of the St. Peter's. The prevailing diseases were catarrhal and intermittent fever, diarrhæa and dysentery, and dropsical and scorbutic affections. The causes seem to have been of a local and fortuitous character; such as, exposure to very inclement weather, both on the march to St. Peter's, and during the time employed in establishing quarters; the want of the usual supplies of the lighter articles of food, and the deteriorated quality of the rations that were issued; the difficulty of attending to those details of police duty upon which the health of a garrison materially depends; and, lastly, the absence of all permanent

accommodations for the sick.

In the southern division of the army, no peculiarity of morbid action is presented. Two-thirds of the fatal cases occurred in the 8th Infantry, employed in cutting a military road, and in the 6th Infantry and Rifle regiment on the Missouri. It is a fact confirmed by multiplied experience, that the diseases of troops in permanent stations are comparatively few and mild; whilst those of a detachment on fatigue, removed from the usual station, exhibit not only an increased ratio, but an augmented average of mortality. The reports for this quarter from the detachments thus employed, "are" says the Surgeon General, "nearly as large in proportion as they were from most of the frontier posts during the war."

Although the summer of this year was remarkable for the general prevalence of fevers characterized by a malignant tendency, yet the ratio

of mortality for the whole year is about the same as the average of 20 years. The fatal character of fever may also be learned from the medical journals of the day, in which we find detailed accounts of its ravages in Boston, New York, Philadelphia, Baltimore, Charleston, Savannah, Mobile, New Orleans, and Natchez. At New Orleans, it was estimated that upwards of 3000 died of yellow fever; and it was not until after the first of December that it was deemed prudent to return either to this city or Natchez. The interior of the country, more especially in the southern States, seemed to suffer in a corresponding ratio. In the West Indies, the fever exhibited perhaps still greater mortality. At Havana, in default of attention to police regulations, the disease, favored by uninterrupted high temperature, continued to prevail until late in January.

This year is remarkable for the prevalence of several diseases, characterized by phenomena of an unusual character. A pecu1820. liar constitution of the atmosphere, at this time, pervaded our whole extent of territory, predisposing to those diseases which were called into action, at various points, by local exciting causes. The ratio of mortality is twice as great as that of the preceding year; a result ascribable to the dreadful ravages of a scorbutic

affection.

In the northern division, in the first quarter, more than one-half of the deaths occurred at Fort Mifflin and St. Peter's. At the former, then a recruiting station, much disease prevailed, owing, in a great measure, to the necessity of crowding the men during the winter season in barracks not calculated to accommodate more than one-third the number. "In many cases," says Post Surgeon S. B. Smith, "there was a total exhaustion of nervous power, and three expired in the act of conversing with their friends, unconscious of danger." The effects of this endemic were manifested in different forms, but the deaths were chiefly among the cases of typhus fever. At St. Peter's, the prevailing disease was scorbutus. The reports from the southern division, with the exception of a pestilence to be described, presented nothing demanding comment. The aggregate of deaths was 188, of which 157 occurred at Council Bluffs from scurvy, leaving but 31 from all other diseases in the whole division.

The number of men reported at Camp Missouri on the first of January was 788, and at St. Peter's 228, making an aggregate of 1,016. The total of cases reported for the quarter at these two points was 895; of these, 503 were of a scorbutic character, and the number of deaths from this cause was 168.

With scurvy in its more aggravated forms, we are fortunately, in the United States, but little acquainted. Our troops, within the present century have, with the exception of two periods, been nearly wholly exempt from its ravages.

The following table, exhibiting the number of cases of scurvy, and

the consequent deaths in the army, during a period of twenty years, shows the comparative infrequency of the disease:

Years -	1819	1820	1821	1822	1823	1824	1825	9281	1827	1828	1829	1830	1831		1833	1834	1835	1836	1837	1838
Cases -	7	734	86	4	29	-	8	4	2	8	6	16	3	7	5	15	9	17	59	159
Deaths -	-	190	5	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3	1	1

The cases reported in the last three years occurred, nearly all, either in Florida, or amongst troops that had served in those campaigns. The ratio of mortality is very low. The relation of cause and effect is here very apparent; for, it can be readily perceived that a diet, consisting mainly of salt provisions, in a constitution deteriorated by repeated attacks of intermittent and remittent fever, and diarrhæa and dysentery, will develope scorbutic and cachectic affections. The ration of our soldier, regarded in all its component parts, no doubt disposes the system to scurvy in warm countries; and in these campaigns, whenever it proved deficient in any respect, it was always found to be so in refer-

ence to the vegetable portion.

It appears, from the official reports, that the troops at St. Peter's and Council Bluffs were exposed to many of the causes, both predisposing and exciting, of scurvy. During their progress from St. Louis up the Missouri, and from Green Bay up the Mississippi, they were not unfrequently obliged to labor in the water beneath the rays of an ardent sun. Sleeping in their wet clothes, and exposed to a damp atmosphere impregnated with malaria, they became reduced by disease; and in this state of predisposition to scurvy, they began, late in the season, the establishment of their winter quarters. The position at Council Bluffs is stated to be "flat, low, marshy, and clayey;" and the weather, during the winter, was exceedingly cold; the mean temperature for January at Council Bluffs being 8 deg. 62 min., and at St. Peter's 0 deg. 17 min. They were destitute of groceries and vegetable food, except flour and corn, which were more or less damaged from having been wet; and their animal food, which was principally salted, they were obliged to eat during a portion of the winter in a putrescent state. This condition of the meats, however, was as far as practicable corrected by washing and boiling with charcoal.

As this disease is one of pre-eminent importance to the army and navy surgeon, a detailed history of its progress at Council Bluffs will prove no less profitable than interesting. As the reports of the two medical officers, Surgeon T. G. Mower, of the 6th Infantry, and Surgeon John Gale, of the Rifle Regiment, indicate the exercise of sound judgment combined with professional skill, their observations are entitled to more

- than ordinary consideration.

From a medico-topographical report, made the preceding quarter by Surgeon Gale, the following extracts are made:—

"Cantonment Missouri is situated on the south bank of the river, in lat. 41 deg. 31 min. N., and agreeably to Major Long's estimate, seven hundred and eighty miles above the confluence of the Missouri and

Mississippi.

"The range of hills, which, at unequal distances, every where bounds the Missouri, runs in upon the river about two miles below the cantonment, and breaks off perpendicularly at the water's brink. This point, denominated by Lewis and Clark "Council Bluffs," was recommended by them as an eligible position for a permanent military work. very sublime and picturesque views; and as a healthy situation, it is

certainly unequalled by any other in the vicinity.

"The climate is less healthy, and the face of the country less pleasant, on the upper than on the lower Missouri. The alluvial tract, which in general bounds the river, is narrower; the soil is less deep; . and the timber is smaller and less abundant. The winter commences The frost this year killed the vegetables as earlier, and continues later. early as the 25th September, and the severity of winter began the The weather is more fluctuating and subject to extremes of temperature. The heat and cold, during the months of October, November, and December, have varied from S8 deg. to 10 deg. below zero of Fahrenheit. The prevailing winds have been from the S. E. and N. W.

"Intermittent and simple continued fevers, rheumatism, dysentery, and catarrh, have been the reigning diseases during this quarter. The predisposing cause may be found in the extreme exposure to which the peculiar mode of navigating the Missouri had necessarily subjected our

men."

To illustrate more fully the peculiar character of this endemic malady, several paragraphs from the report of Surgeon Gale, and the entire

report of Surgeon Mower, are subjoined.

"The second battalion of Riflemen," says Surgeon Gale, in his special report dated Camp Council Bluffs, October 1st, 1820, "left Belle Fontaine and proceeded up the Missouri on the 15th June, 1819; joined the first battalion at Cow Island, on the 30th of August, and arrived at

Council Bluffs, a distance of 780 miles, on the 2d of October.

"It will not surprise you to learn that the fatigue endured in transporting loaded boats such a distance in the peculiarly laborious manner of navigating the Missouri, and exposure to the meridian sun, the dews of evening, and the chill air of night, were productive of disease. Nearly every man had suffered severely from sickness, and many experienced relapses, before arriving at our point of destination; nor did we then cease to suffer from dysentery, catarrh, and rheumatism."

"With every exertion, our buildings were not completed until the first of January. At this period, from accumulated suffering, a disposition to despondency was manifest. Nearly all seemed to be reduced by protracted sickness and long continued labor. The sutler's supplies were exhausted, the fresh provisions were nearly all issued, and the Hospital stores were inadequate to an emergency. In this situation,

when the most nutritive diet was requisite to restore our exhausted energies, the men were compelled to subsist on salted or smoke-dried meats, without vegetables or groceries of any description. To add to our list of sufferings, the weather in January became excessively severe; the mercury, at different periods, for several days in succession, did not rise above zero, and once fell 22 deg. below that point. Under these circumstances, about the 20th January, the scurvy made its appearance, to which all other diseases soon yielded precedence; but it proved fatal in few cases until February, when nearly the whole regiment sank beneath its influence.

"The disease continued unabated until the 7th of April, when wild vegetables appeared. After this period, no new cases occurred, and those already affected began to recover. Of the riflemen, eighty fell victims to the malady, sixty at this place and twenty between this point and Fort Osage. None died after the arrival of the sick at the latter-

place.

"That debility, induced by long continued sickness, was favorable to its development, is manifest from the fact, that those who were most debilitated from previous indisposition, were first seized and numbered among its earliest victims. It may also be reasonably inferred that excessive labor and fatigue, and the severity of the weather, had an agency in the production of the disease; for the officers and non-commissioned officers, who experienced less of the former, and were less exposed to the latter, were exempt from its effects. One officer, who had been long confined by indisposition, formed an exception. This was the only case in which there was the least degree of convalescence observable prior to the appearance of vegetables; and this was probably effected by our being enabled to subsist him on eggs, chickens, milk, &c.—presumptive evidence that a nutritive diet will produce a cure.

"Among the causes producing the disease, may also be enumerated the residence of the men in green damp rooms in conjunction with a faulty diet; for the riflemen, who are more expert in hunting than the Infantry, procured more wild meat and suffered far less. Our hunters detailed especially for that purpose, who resided in the woods and subsisted on game, were in no instance unhealthy. An officer with a detachment, who wintered in a half-faced camp, some distance below this place, and subsisted his men entirely on fresh provisions from the woods,

experienced no sickness of any description."

The following is the special report of Surgeon Mower:—

### " CAMP COUNCIL BLUFFS, October 1st, 1820.

"Sir: I have been honored with your letter of the 13th May, requiring me to 'transmit with my next quarterly report, a detailed account of all the causes, both immediate and remote, which have probably produced the unusual mortality among the troops on the Missouri; stating the situation and circumstances of the men, both in relation to the nature of the country and of the duties required of them; the quantity and quality of their supplies of all kinds, &c.'

"It may be proper to premise that the general character of the report required supposes me possessed of information, which in no wise appertains to my department, and for which I have never been clothed with authority to ask, much less to demand. With the exception that the issues of provisions fell under my inspection, it is obvious that my knowledge of the supplies, belonging to the Quartermaster's and Commissary's Department, is for the most part casual and unofficial. To remedy this embarrassment, I addressed a note to the commanding officer of the regiment, requesting him to afford me information upon several subjects, with which I am imperfectly acquainted. To this note I have received no answer.

"It may be worthy of remark that some circumstances, perhaps important to this report, may have transpired during my unavoidable absence from the main body of the regiment, for more than four months. Having embarked at Belle Fontaine on board the steamboat 'Johnson,' she was arrested in her progress about 300 miles above the mouth of the river. This occurrence necessarily delayed my arrival at the Council

Bluffs till the 10th of November.

"As few cases of mortality are recorded in the regiment since its arrival on this river, in which the scorbutic taint was not predominant, our inquiries are consequently confined to the probable causes which produced this particular disease. It is foreign to my purpose to attempt a theoretical discussion of the nature of the disease in question, or its proximate causes. The circumstances which preceded, and which are supposed to have contributed to the production of that distressing malady, form the subjects of consideration.

"The prevalence of scurvy in the 6th Regiment of Infantry, during the last winter, may be attributed to the following causes, viz: excessive

and long continued fatigue—cold and dampness—faulty diet.

The 6th Regiment of Infantry, previously to taking up its march for the Missouri, had been cantoned at Plattsburgh for nearly three years, where it had experienced much of the "gay delight" of a military life with few of its hardships or privations. During this period, many foreigners had entered its ranks, who, from education and habits, were better fitted for the ordinary duties of a garrison than to undergo the laborious toils which awaited them.

"The corps left Plattsburgh on the 20th of March, and arrived at Pittsburgh the 1st of May. At this place it halted one week, when it was embarked on board transports for St. Louis. The confinement on board the boats during our passage down the Ohio, together with the use of the river water, which was extremely turbid, added considerably

to the sick list.

"On our arrival at Belle Fontaine, (June 8,) the men appeared somewhat enfeebled; nor was the weather, which proved excessively warm, calculated to restore them to strength and activity. On the contrary, they seemed to experience the same languor, which is felt by the northern man on passing into tropical climates.

"On the evening of the 4th July, the regiment was again embarked on board of three steamboats and four barges, destined for the Council Bluff's. Without the experience of watermen, the troops had now to contend with a torrent, which, in point of rapidity and natural obstruc-

tions, is perhaps without a parallel.

"The narrow channel of the Missouri at low stages of water, combined with its frequent and sudden bends, precludes in a great measure the use of sails. In propelling the barges, the cordelle and setting poles form the principal dependence. This mode of ascending the river requires of the navigator the most active and incessant exertions; while the severity of his labors is not a little aggravated by being frequently compelled to plunge into the water. After the most persevering exertions, the several companies composing the regiment reached the place of destination between the 3d of October and the 14th of November. To the failure of the steamboats this dispersed state of the regiment is to be attributed.

"It now remained for the troops to shelter themselves from the inclemency of the season, and to secure themselves against hostile aggressions. An alluvial bottom on the right bank of the river, about two miles above the Council Bluffs, was designated as the site for the cantonment of the infantry and rifle regiments. This bottom is skirted by a range of high bluffs, which alternately approach and recede from the river. These bluffs are intersected by several deep ravines and small water-courses, which break through from the high-lands. The bottom composed principally of clay, is low and flat, and consequently productive of a humid atmosphere. This region is in its primitive state. With the exception of the bottom just described, and the borders of streams generally, which are covered with a thin forest, consisting principally of poplars, walnut, elm, and some oak, the adjacent country presents a boundless prairie. The extremes of heat and cold inseparable from an inland region, are here increased by the prevalence of high winds, which are favored by the openness of the country.

"The site for the cantonment, as subsequent experience has proven, had little to recommend it, excepting the facility of procuring timber. A small lake of about three miles circumference, during the low stages of the Missouri, approaches within 600 yards of the cantonment. At the late unusual and perhaps unprecedented rise of the river, its waters communicated with those of the lake, and inundated the adjacent bottoms, including the ground on which the cantonment had been

erected.

"The agency of this lake in producing those diseases, which afflicted our troops while stationed in its vicinity, has been a subject of speculation. It is true, experience has taught us to guard against the exhalations arising from stagnant bodies of water, more especially if any portion of the soil recently submerged is exposed to the direct rays of the sun. When various circumstances combine, calculated to produce any particular effect, it is often difficult to assign to each its peculiar agency. In the present instance, the character of the diseases which prevailed, and the period at which they commenced, seem to lessen very much the probability that any unsalutary effects resulted from our proximity to the lake.

"Early in October, the ground having been surveyed and laid off, the regiment commenced the erection of its barracks. At this period, only five companies out of eight had arrived. The position selected for our cantonment was surrounded by a thick grove of poplars—a species of timber known in this country by the name of cotton-wood. The principal part of the logs and plank used in the construction of the barracks, was procured in the immediate vicinity. The covering (clapboards) for one-half the rooms, the stone for fire-places, and the lime, were transported by water the distance of ten or twelve miles. The remaining rooms, including the store-houses, were covered with shingles or boards procured near the cantonment. Fifty eighteen feet rooms were erected for the accommodation of the regiment, exclusive of store-houses, workshops, &c. The barracks were constructed with single roofs, having a perpendicular height of 9 feet in front and 18 in rear.

"It is difficult to say at what period the quarters were completed, or when they were first occupied. Some of the officers went in between the 20th and 30th of November; whilst others remained in tents for more than four weeks after. The men moved into their barracks at different periods during the month of December, although many of the rooms were still deficient in floors, bunks, doors, &c. The regimental hospital was prepared for the reception of the sick about the 20th of the

same month.

"The latter part of December and the whole of January proved excessively cold, the mean of the latter month being 8 deg. 62-min.; and the barracks, hastily thrown up from green materials, opposed but a feeble barrier to the inclemency of the season. Notwithstanding the severity of the weather, the regiment was still constantly employed in procuring materials for the completion of the barracks, fire-wood, &c. Owing to the small number of working cattle and the feeble state of the men, it required the whole strength of the corps to accomplish these objects. It is here proper to remark that no objection can rest against the supply of clothing furnished during the last winter.

"The timber (cotton wood) which composed the greater part of the barracks, although convenient and sufficiently abundant, was particularly objectionable on account of its humidity; the quantity of water contained in this wood is almost incredible. The advanced state of the season, however, compelled the men to take shelter under their rude

covers, green, damp, and unfinished as they were.

"The state of our subsistence stores had long been eviewed with concern. Fresh beef, which had been issued to the troops since their arrival, in the usual proportion, was in the latter part of January restricted to the use of a few hospital patients. The country not abounding in game, and the regiment having no expert hunters, little advantage was derived from the chase. The important articles of beans, peas, and vinegar, contemplated to have formed component parts of the ration, failed altogether. Salted pork and beef, bacon, flour, and Indian corn, constituted the substantial part of the ration. By far the greater part of the meat was decidedly in a putrescent state, and absolutely unfit for issue; the smell and taste both rejected it with disgust. The flour,

although less exceptionable than the meats, and originally of a fine quality, had become musty previously to its issue. The corn, which was furnished in the proportion of two pints to every six rations, was soon thrown aside as a drug. Deprived of vegetables and the usual condiments of the table, the repast of the soldier was, at the same time, deficient in nutriment, unpalatable, and unwholesome.

"The medical supplies of the regiment, although sufficient in quantity for ordinary seasons, were of a very inferior quality, and by no

means calculated to meet the present exigency.

"Previously to the appearance of scurvy, the men had been much enfeebled by dysentery and pulmonic inflammations; and were consequently rendered more susceptible of other ailments. The former disease commenced its attack soon after their arrival, and raged with violence till the close of the year. It was then succeeded by inflammatory affections of the lungs, which prevailed with little abatement till the

latter part of January.

"Early in this month (January) a scorbutic taint was perceptible in some of our patients, who were laboring under other diseases. At first the cases were mild, and appeared to yield, in some measure, to treat-During the whole of this month, it was noticed that the recovery of our patients was peculiarly slow and precarious; in many cases, after the acuteness of disease had been subdued, the sufferer continued to languish and decline. Early in February the progress of scurvy had become alarming; its baneful influence was rapidly extending to every other form of disease. The situation of the command had assumed a serious aspect. Most of the exciting causes still existed, while the means of relief were beyond our reach. The commandant of the post having been apprized, from time to time, of the nature and extent of the prevailing malady, and of the means best calculated to arrest its progress, organized parties under the direction of officers, and despatched them up the river in pursuit of buffalo and other game. Unfortunately the success attending these exertions was very inconsiderable.

"We regret to acknowledge that the firmness of the American soldier should have been for a moment shaken by any concurrence of circumstances. We cannot conceal the fact, however, that during the prevalence of that loathsome malady which afflicted our garrison, gloomy forebodings were depicted on many a countenance; nor were the best directed efforts to counteract this despondency, by introducing diverting games, music, &c., attended with much success.\* On the 23d of Feb-

<sup>\*</sup> Surgeon Mower having several times witnessed small-pox and epidemic cholera in their most malignant forms, avers that neither is as dreadful as the endemic described in his report. It is not the sight of pale forms, encircled by bloody bandages, that blanches the soldier's cheek, for he knows that such is the chance of battle. Even when the surgeon tells his wounded patient that he must look for help beyond the grave, the transition from time to eternity is borne with calmness and resignation, soothed by the consciousness of having fallen in the discharge of his duty and in his country's cause. But when the wards of an hospital become crowded with ghastly and attenuated frames, victims to a baneful

ruary, the commandant, feelingly alive to the interests of the soldier, summoned together a board of war to deliberate on measures for the relief of the command. Of the result of these deliberations, I am at present ignorant. In compliance with the wishes of this board, I submitted to them a report relative to the health of the regiment, and the means best calculated to counteract the influence of the disease then unhappily existing. On the 25th of the following month, 70 scorbutic patients belonging to the 6th Regiment were embarked on board of keel boats, under the charge of Surgeon's mate Nicoll, destined for Fort Osage. At this place it was believed that they would more speedily obtain a

regimen adapted to their condition.

"On the removal of these men, we had nearly 100 patients left, suffering under the influence of the same disorder. During the first week in April, the weather proving favorable, we removed a large proportion of our sick from the Cantonment, and located them on a small stream under tents, about three miles distant. Fortunately, at this period, wild vegetables began to shoot up. These powerful remedies, combined with mild weather, pure air, and change of scenery, soon banished the demon, Scurvy, and restored its victims to strength and activity. So potent was the influence of this new state of things, that patients recovered under the most unpromising aspects. Not a single death occurred at "Camp Recovery," although several persons were removed thither in a seeming moribund state. In some of them, every tooth had dropped from its socket, and even large portions of the lips had sloughed off. Among the vegetable products first discovered, and most esteemed for its remedial virtues, was the wild onion, a very diminutive bulbous root, not larger than a nutmeg.

"When we reflect on the long and arduous march performed by the 6th regiment of Infantry,—the unavoidable fatigues which awaited these troops on their arrival at the place of destination,—the vicissitudes of heat, cold, and dampness, to which they were exposed,—the wretched quality of provisions on which they subsisted,—we cease to wonder that sickness and mortality have prevailed. Had the corps maintained its health, we might be warranted in believing that the age of miracles

had returned.

I have the honor to be, very respectfully,

Your obedient servant, T. G. MOWER,

Surgeon 6th Infantry."

JOSEPH LOVELL, Esq. Surgeon General U. S. Army.

climate, or a loathsome pestilence, living skeletons, debilitated and slowly sinking, doomed—
————" to feel

The icy worm around them steal, Without the power to scare away The cold consumers of their clay,"

how appalling to the living is the spectacle of the dead and the dying! When those, who but several days previously bore their comrades to the grave, are in turn stretched upon the same bier, then it is that the bravest heart quails!

During the second quarter of the year, there was no prevailing complaint. In the northern division there were but 16 deaths, of which six arose from pulmonary consumption. In the southern division, the deaths numbered 61; of these, however, 21 occurred early in the quarter, being the effects of the scurvy which had prevailed, during the winter, on the Missouri. So far as regards the effects of climate, it will be seen that the mortality of this division must be still further reduced. At Fort Scott, Ga., the average strength of the command was 410, and the number of deaths 8. Of these fatal cases, one arose from apoplexy and another from hæmatemesis; and in regard to the six others, it is remarked by Surgeon Thomas Lawson, that "life was nearly exhausted on their arrival at the post from Fort Gadsden, and that 5 or 6 had died on the passage, in consequence of being pent up for more than twenty days in a small vessel, and deprived the greater part of the time of medi-At Fort Gadsden, seven recruits died very soon after their arrival from the north. The sending of recruits to the south at unpropitious seasons has happened too often in our military history to be reconciled on the ground of necessity; and as a specimen of the moral and physical constitution of the subjects exposed to this trial, it is remarked by Post Surgeon Walmsey, that—"among 70 recruits from Philadelphia, several are old men, three are idiots, and nearly all intemperate."

The scorbutic patients of the 6th Infantry and Rifle regiment, as already stated, were removed to Fort Osage. The number of cases not embraced in the previous report was 119, of which 7 proved fatal. The numerical strength of the command was 117, and the sick report, at the close of the quarter, exhibited but 27 cases. The 6th Infantry, numbering from 200 to 250 men, had 92 cases, chiefly scorbutic, on the sick list at the previous quarterly report; of these, 13 died before the 15th of April, after which period no death occurred. The Rifle regiment, numbering about 350, became remarkably healthy; although the sick report presented 77 cases, principally scurvy, at the beginning of the quarter, but one death took place. Fernandina, Montpelier, the Bay of St. Louis, and Petite Coquille, were extraordinarily salubrious. At Baton Rouge, there were 9 deaths out of 383 cases; and at New Orleans.

8 deaths in 36 cases.

During the *third quarter*, the diseases of the northern division presented their ordinary aspect. The aggregate of deaths was only 28; of which 6 were from typhus fever, 4 from phthisis pulmonalis, and 3 from

intemperance, the causes of 7 being undesignated.

In the southern division, the mortality was unusually great; the majority of the deaths, however, occurred at a few posts. The aggregate was 116; 25 at Fort Gadsden, 12 at Apalachicola Bay, 16 at Montpelier, 10 at the Bay of St. Louis, 8 at New Orleans, and 30 at Baton Rouge. The chief complaints at these posts, (the causes of death at Baton Rouge not being stated,) were diarrhæa and dysentery, and intermittent, remittent, and typhus fever. Of the deaths reported at the other stations, 6 arose from typhus fever, 30 from dysentery, and 28 from bilious remittent or yellow fever.

The unhealthiness of the summer season in the south may be traced

to the following causes: 1st. Excessively high and long continued atmospheric temperature, the mean temperature at 2 P. M. for the quarter being, at Fort Scott a fraction less than 86, at Montpelier and New Orleans 85, and at Baton Rouge 83. 2d. The insalubrious locality of some posts, especially Forts Scott and Gadsden. 3d. The impracticability of preventing decomposition in some portions of the ration. 4th. The destructive effects of a southern climate, in an unhealthy season, upon northern constitutions already debilitated by indulgence in vicious habits. To these causes may be added others comparatively of minor importance; such as errors in diet and police, and a want of due attention in selecting the time and limiting the duration of fatigue duty, during the prevalence of summer heats.

To illustrate this subject more fully, several extracts from the re-

ports of medical officers are appended.

"Yellow Fever," says Dr. Bell, "has prevailed in most of the southern sea-ports, particularly at Savannah, during this quarter. It made its appearance at New Orleans about the 10th of July, exhibiting a character somewhat new; its malignity was uncommonly great, most cases eventuating in death. On its decline, about the 18th of October, the disease assumed a typhoid form in its sequel. It prevailed also at the bay of St. Louis, the usual summer resort of the citizens of New Orleans, with such dreadful malignity as to prove fatal, after a few days illness, to several natives of the place. At this post (Petite Coquille) it appeared about the 10th of August."

At the bay of St. Louis, Mi., the average strength of the command for the quarter was 446; the number of cases treated 486, and the deaths 10. Diarrhæa and dysentery were very rife; the latter, although characterized by considerable severity and a fever of the remittent type, did not prove fatal. In July intermittent fever was most common, but in August and September nearly all cases assumed the remittent form.

"A small detachment," says Dr. Merrill, Surgeon's Mate of the 8th Infantry, "arrived here on the 20th August, commanded by Lieutenant Blaney. These men, in descending the Mississippi, had been greatly exposed and suffered much fatigue, and at New Orleans they were detained sometime after the sickly season had begun, and attacks of yellow fever had become frequent. One man, who had been attacked with yellow fever on the route from New Orleans to this place, died with the black vomit 12 hours after their arrival. This produced considerable consternation; and within 24 hours five more were seized in the same manner, two of whom died on the third day. The first symptoms were violent pains in the head and back, nausea, and a great disposition to vomit on receiving food; the pulse was preternaturally slow and depressed, the skin dry, the eyes suffused with blood, and the tongue furred and parched. These symptoms were succeeded by listlessness and stupor, great irritability of the stomach, and a frequent vomiting of viscid mucus, mixed with particles or flakes of black matter resembling coagulated blood. If the vomiting continued, this subtance increased in quantity, and became more attenuated; and in the stage

immediately preceding death, it assumed precisely the appearance of

old coffee-grounds.

"The first three cases proved fatal, and in these the treatment was nearly the same as in bilious remittent of the usual type. succeeding cases, a more energetic plan was pursued. Venesection was performed ad deliquium; to produce this effect, 30 and 36 ounces were in some instances taken. From 15 to 20 grains of calomel with an equal quantity of jalap, were then administered, with cooling mucilaginous and acidulated drinks. This was immediately followed by calomel, every hour, in doses of 2 or 3 grains, combined with a sufficient quantity of opium to prevent a cathartic effect. At the same time, mercurial friction was employed without reference to quantity. Nausea and vomiting were generally relieved by the aqua carb: ammon: in doses of from 30 to 40 drops. As the patient invariably complained of a burning acid taste in the matter vomited, I was led to the use of alkalies, instead of acids, in the latter stages of the complaint. To alleviate this symptom, the ol: terebin: was in some cases used, but with less beneficial effects.

"After this treatment was adopted, not a single case proved fatal. In four or five days, a profuse salivation was commonly induced, which always rendered the patient safe. As soon as was practicable after the arrival of this detachment, sixteen ounces of blood were taken from the arm of each man, and a large dose of calomel and jalap administered. The desired effect being produced, none were *violently* seized after-

wards.

"It may not be amiss to observe that the practice of sending northern recruits to this section of the country, during the hot and sickly season, is a dangerous one, particularly when transported by way of the rivers. Change of climate is not the most important consideration. Crowded into open and uncomfortable boats, they are constantly exposed during the day to the powerful rays of the sun, and during the night to the noxious miasma of extensive marshes. As the change of climate is great, and the morbific agents potent, a corresponding mortality is always exhibited."

As many of the diseases of our southern latitudes frequently assume a malignant character, demanding a treatment corresponding to these peculiar phases, the importance of correct knowledge in regard to their pathology and remedial management is very obvious. And as every circumstance tending to elucidate this subject is fraught with great value, the following remarks from the pen of Surgeon Thomas Lawson, (now Surgeon General,) in relation to the several modifications of disease at Fort Scott, near the confluence of the Flint with the Chattahoochee river, will be found not wholly without interest:

## "FORT SCOTT, GA., October 1, 1820.

"Sir: The current summer has proven unusually sickly. An insalubrious atmosphere has pervaded the country, and disease and death

have been everywhere present. That the troops have suffered in the utmost severity, the record of mortality affords melancholy evidence.

"About the 15th July, the simple inflammatory fevers began to yield to remittents; dysentery and diarrhœa also gave ground; but intermittents maintained their position in the foremost rank. On the 1st August, remittents became more rife, and exhibited in a short time terrible phenomena. In September, they still gained ground, and eventually became so formidable as to prostrate every thing against which their force was directed.

"Bilious remitting fever, although not the most prevalent disease of our cantonment, claims, on account of its malignant character, our first

and special consideration.

"This disease, many cases of which present the characteristic features of yellow fever, exhibits in its invasion, progress, and termination, very diversified phenomena. Although inflammatory symptoms most commonly mark its attack, it frequently assumes, even at the onset, a typhoid character. Its course is very irregular, manifesting various and opposite symptoms in different, and frequently in the same subject; and its termination, if not immediately in death or restoration to health, generally eventuates in an intermittent, a diarrhæa, or dysentery, or in visceral obstructions. Its fatal close is sometimes sudden, but oftener gradual. The patient, in some instances, sinks directly under the weight of the primary disease; in other cases, after withstanding the first assault, and even that of two or three successive maladies, he willingly resigns his life, worn down by continued suffering. Whilst some expire in convulsions, others pass away without a groan or a struggle.

"The precursory symptoms, in every modification of the disease, are, mental anxiety, listlessness, languor, and lassitude on the least muscular exertion. But the disease is presented under several prominent modifications. The symptoms of the first or milder grade of the regular form, are nausea, pains in the back and extremities, vertigo, acute pain in the head, and vehement pyrexia. The febrile exacerbation is commonly ushered in with a chill, although frequently without it. During the stage of reaction, the pulse is frequent, full, and tense; an intolerable heat is diffused over the superficies of the body, with a similar sensation in the internal organs; the skin is dry and parched; the tongue is slightly moist, and covered with a white or greenish fur; great deter-

mination to the head and high delirium usually exist.

"In the second grade of the regular form, the disease is manifested by vertigo, imperfect vision, obtuse pain in the head, pain and anxiety in the region of the chest, difficulty of respiration, a tendency to coma, vomiting sometimes attended with purging, great prostration of strength, and loss of the power of locomotion. In this modification, the reaction is less frequently preceded by a chill; the pulse is small and frequent; the skin is dry and contracted; the tongue is parched and constricted, with a glossy appearance; the thirst is intolerable; a horrible sensation of burning heat is felt throughout the intestines; and stupor prevails in every stage of the disease.

"In the third variety, or first irregular form, the patient is suddenly affected with syncope, he falls down and remains in a state of insensibility for fifteen or thirty minutes, and on being resuscitated, a cold sweat appears; his respiration is laborious, with great anxiety about the precordia; the stomach rejects its contents, and the bowels are often violently evacuated; and lastly, he is seized with general paralysis. In this condition, the pulse is small, quick, and frequently intermitting; the skin is very cold and shrivelled; the tongue maintains its natural appearance; little or no delirium prevails; but the tendency to syncope is so great, that the patient faints upon the least change of position, more especially when placed in an erect posture.

"In the fourth modification, or second irregular form, the victim seems affected with vertigo and total loss of vision; he totters, reels, and

sinks examinate to the ground.

"Vertigo is a universal symptom, and frequently continues through the whole course of the disease. Symptomatic phrenitis is generally present in the first form, and stupor prevails in almost every case of the second grade. Unquenchable thirst, a very distressing sensation of internal heat, and difficulty in respiration, are phenomena present in all its modifications. Constipation of the bowels is a constant attendant, and dysuria, ischuria, gastrodynia, and various anomalous symptoms often supervene during the progress of the malady.

"In a number of cases, the skin becomes yellow. This, although a highly unfavorable symptom, is not absolutely indicative of a fatal result. Towards the fatal termination, the skin assumes a saffron hue, a cadaverous smell exhales from the body, hæmorrhage takes place from the mouth, nose, and ears, whilst the stomach constantly ejects a very

dark green or black colored matter.

"In the *first* form, a remission of fever is scarcely perceptible for fortyeight or sixty hours, after which period there are daily exacerbations and remissions. In the second form, it assumes at first the type of a quotidian or rather double tertian, for every other paroxysm is decidedly the more severe. In its third modification, the disease assumes no definite In some instances, every organ quickly resumes its proper functions, the enemy seening to have expended his whole force in the In other cases, the patient lies prostrate for twenty-four or thirty-six hours, when symptoms of resuscitation appear, and his system gradually, but not without many struggles, regains its wonted energies. There are other cases, again, in which the powers of life are prostrated beyond recovery. Under these circumstances, the person remains in a state of prostration, but quite rational and calm, until the third, fourth, or fifth day, when nature, seeming to rally all her powers, makes a violent effort to free the system from oppression, but failing in the attempt, the patient expires in the struggle. In the fourth form, the victim is at once cut off.

"The predisposing and exciting causes of the disease under consideration, are so various and complex, that it were no easy matter to assign to each its proper influence. On the one hand, we have exhalations from surrounding marshes, and the effluvia arising from putrid animal

and vegetable matter; and on the other hand, fatigue, drunkenness, insolation, and exposure to cold and damp night air, all acting in conjunction with the effects of unwholesome provisions and a disaffected

state of the general mind.

"Our police, although far from commendable, is perhaps as well maintained as is practicable among recruits. Despite the efforts of officers, drunkenness will prevail. Whiskey is smuggled into camp; moreover, as a few of the men dispose of their whiskey ration, others are enabled to get daily a pint or a quart of ardent spirits. The fatigue endured by our men in transporting provisions, &c., from Fort Gadsden to this point, and in building and repairing barracks, &c., cannot be regarded as excessive to men of ordinary physical strength and accustomed to labor; but to the refuse of mankind, gathered from the purlieus of our cities, the burdens imposed may have been beyond the measure of their abilities. Our provisions have been in a state of such impurity, that were other supplies within reach, it is very probable that the greater part would be condemned. As the men have lately changed their mode of life, have come to an unfriendly clime, and are ignorant of their new profession, they have experienced just enough of military life to hate the service.

"In prescribing for this bilious remitting fever, the therapeutic means have been as various as its different forms, and the several grades of each modification. As each grade is characterized by peculiar pathological conditions, the treatment was based upon the principle to com-

bat the symptoms as they arise.

"In the inflammatory form of the disease, it is absolutely necessary to abstract from twelve to twenty ounces of blood, an operation which it is sometimes required to repeat once or twice. As a general rule, I usually administer on the first day an emetic, and on the second a cathartic; and thenceforth adopt means to procure daily evacuations, a result not easily effected in consequence of the extreme torpor of the intestinal canal. With the view to restore the healthy functions of the skin, and to maintain the bowels in a soluble state, I give, every three or four hours, a powder composed of nit. potassæ, ant. tart., and submurhydrg. Cooling acidulated drinks, and the application of cold water by effusion, have proven very useful remedies; whilst the application of blisters is frequently required during the progress of the malady.

"In the second modification, I usually, on the first day, if the state of the stomach allows, administer a dose of ipecacuanha; and should it not excite purgation as well as emesis, some aperient medicine is soon after given. Frequently, by the next morning, the reaction has become so violent as to demand depletion. I accordingly abstract blood and administer a cathartic, and at night prescribe an anodyne diaphoretic draught. The subsequent remediate management depends on the character of the morbid manifestations. If it become a disease of high febrile action, I resort to such means as tend directly to reduce arterial excitement, and as soon as a long and distinct remission or a perfect intermission is established, I administer some of the milder tonics. Should a low form of fever, on the contrary, supervene, I prescribe,

during the exacerbation, the spiritus nit. dulcis every three or four hours; and when a distinct remission or complete apyrexia occurs, wine, bark, and other tonics, are administered. The application of cold water or vinegar and water, by ablution or aspersion, has been tested; and its good effects, in cases pertaining to both these modifications, have been abundantly established.

"In the event of the stomach's being so irritable as to reject every thing, I administer copious draughts of warm water or chamomile tea, and afterwards a cordial anodyne. The irritability being thus allayed, 15 or 20 grains of calomel can be given on the following day with advantage. The subsequent treatment will depend upon circumstances.

"In the third modification, the principal indications are, to allay the irritability of the stomach and to support the sinking powers of the sys-To fulfil these views, the application of hot bricks to the feet and flannel wrung out of boiling water to the abdomen, and the internal administration of æther and laudanum, are prompt and certain in their effects. If retained by the stomach, the draught is repeated according to the urgency of the symptoms; but if rejected, 40 or 50 drops of laudanum are united to a saline draught, and given in the act of effervesence—to be repeated at intervals of several hours, pro re nata. cases of this kind, large and active sinapisms, or blisters to the region of the stomach, have been found very servicable; anodyne enemata frequently repeated have proven decidedly beneficial, and the application by friction to the abdomen of a linament composed of ol: olivar: aq. ammon: and tr: opii, has also been attended with marked advantage. After the vital actions have been re-established, the patient will require but little medicine, as each organ will naturally resume its appropriate It not unfrequently happens, however, that fever of a typhoid character supervenes, impeding and sometimes arresting the progress of convalescence.

With those who have fallen by this disease in its fourth modification I had very little to do, for disease and death at one and the same moment grappled the victim, and instantly plunged him into eternity.

"As the history of this destructive malady supersedes the necessity of a detailed account of the other diseases of our camp, I shall exhibit

simply the outlines of their character.

"The diseases under consideration are verycomplex, may perplex, and often come in 'such a questionable shape' as to defy all nosological systems. The constitution of the atmosphere has been so peculiarly favourable to the production of bilious remitting fever, that all other diseases have been taught to acknowledge its supremacy. Upon a general survey of the peculiarities of each disease, the fact is clearly established that the character of all is modified by the prevailing epidemic. Nearly all the cases of dysentery are accompanied with some grade of fever of the remitting type, and would have been, perhaps, bilious remittents, had not a predisposition to intestinal derangement been induced in the subjects by their having been drenched in rain, having slept in wet clothes, or having laid out in the night air. The cases of diarrhea also are nothing more than irregular forms of the reigning disease, the predis-

position having been induced by eating very course and impure cornmeal, or by the excessive use of spirituous liquors. It seems as though the enemy, perceiving a breach in the fortress, changed his mode of attack and brought his whole force to bear upon the point most vulnerable.

"Nor are intermittents less under the control of the prevailing type; for most of them are of the quotidian form, which readily runs into the remittent, and then into the continued type, assuming sometimes a ma-

lignant character."

"With sentiments of high consideration and respect, I have the honor to be,

Your obedient servant.

THOMAS LAWSON, Surgeon, 7th Infantry."

"JOSEPH LOVELL, M. D.

Surgeon General United States Army.

In the last quarter of the year, the number of deaths in the northern division was 26, and in the southern 122. At Fort Scott and Baton Rouge, those two most deadly positions, the mortality was extraordinarily great. In the consolidated 7th regiment of Infantry, consisting of 760 men, there were 769 cases of indisposition, a majority of them malignant diseases, and 32 deaths. At Baton Rouge, in a command of about 375, the cases of disease were 553, and deaths 38. The chief causes of the mortality at these two posts have been referred to already; but as the diseases of the former post assumed unusual characters, some extracts from the report of Surgeon Lawson, dated 1st of January, 1821, are presented, in elucidation of their peculiarities.

"In opposition to our confident expectations, the troops at this place continued extraordinarily sickly until the 20th of November, and up to

this period cases of malignant bilious fever daily occurred.

"As the season advanced, our perplexities augmented. Diseases commonly the most simple became complex; the more difficult grew malignant, and all assumed such an aggravated character as to be scarcely definable. To determine the causes of all these anomalies, I have not been wanting in proper exertions; nevertheless, the conclusions to which I have arrived, are not altogether satisfactory. Independently of the various specific sources of disease among us, so many other causes tending to the destruction of the 7th Infantry have existed, (the elements themselves being against us,) that I cannot otherwise account for the misfortunes that have befallen us, than by ascribing them to a dispensation of Providence.

"About the 15th of September, as the sick-list increased daily in numbers, and the diseases in malignancy, it was deemed advisable that a portion of our invalids should be removed beyond the influence of

the cantonment's atmosphere.

"Accordingly on the 18th, such as were capable of enduring the unavoidable fatigue, and whose complaints were likely to be benefitted by a change of air, in number about 70, were removed under the charge of one of the Assistant Surgeons to a high pine ridge to the southeast of, and three miles distant from this place and the river. But scarcely were the tents pitched before a heavy rain came on, which, continuing five or six days, occasioned the immediate dissolution of several, and produced irreparable injury to all the sick. Many of those affected with intermitting fever, were also attacked with dysentery or diarrhæa, and vice versa. Nay, the diseases generally became blended the one with the other.

"As the weather soon grew mild, this little colony began to revive, one or two dropping off occasionally, until the 22d of October, when the sudden fall of the thermometer laid all prostrate, some of them never more to rise. This was the most fatal period. Every convalescent relapsed into his old, or contracted some new disease; and this state of things continued, with but little melioration, until the 23d November, when the establishment was broken up, and the surviving sick brought back to the cantonment. Thus did, in consequence of adventitious circumstances, the most disastrous results follow our best directed efforts.

"Nor was death much less busy at this place. As soon as cold weather commenced, which came on a month earlier than usual, all diseases exhibited new complications and more fatal results. In some cases, every symptom of disease having been removed, the convalescent indulged the hope that his sufferings were at an end; but an ill-omened change, without any evident cause, would unexpectedly appear; and so little power of resisting the influence of external agents remained, that even a sudden reduction in the temperature of the atmosphere was sufficient to destroy vitality. In other instances, the patient seemed overwhelmed with several diseases. Between the 22d October and the 1st December, almost every case of intermittent fever was complicated with diarrhœa or dysentery. Remitting fever and scurvy were also frequently combined. Nor were the instances few in which four distinct characters of disease, were developed in the same individual. For days, for weeks, nay longer, would one of these poor creatures stagger under the burden of intermittent fever, dropsy, and scurvy combined, when the diarrhea also coming on him, he necessarily sank under the accumulated weight of disease."

In the northern division, during the first quarter, diseases presented their usual characters. Towards the end of January, 1821. scurvy made its appearance at Fort Crawford, Prairie du Chien. There were 16 cases, two of which terminated fatally. It was ascribed to the influence of a damp atmosphere in conjunction with the want of fresh vegetables, upon constitutions reduced by previous sickness. The two fatal cases occurred in individuals who had labored, during the summer, under intermittent fever complicated with hepatic lesions. They sank under a scorbutic dysentery. Surgeon's mate Mendenhall reports that, having used the "nitrous vinegar" with little success, he resorted to the employment of raw potatoes and vinegar. "To be satisfied of the virtue of this remedy," he says, "I selected four or five of the worst cases, which had received no alleviation from the use of the nitre and vinegar, and directed each one to eat per day a common soup-plate full of the potatoe sliced down in a sufficient quantity of vin-

egar. It had an immediate effect on the stomach, which recovered its natural vigor; the bowels became regular, the pains abated, the stricture of the tendons was overcome, the ulcers put on a healthy aspect, and in a few days the patient found himself in a happy state of convalescence."

The southern division was unusually healthy, the total of deaths being but 42; of which eight occurred at Baton Rouge in a command of 372 men, with 347 sick; 11 at Fort Gadsden, on the Appalachicola river, in a battalion of 250 Artillery, with 296 sick; and seven at Fort Scott, in the 7th Infantry, 750 men strong, with 541 cases of indisposition. At Fort Scott the mortality was, for several quarters, mostly confined to northern recruits, who are represented by the medical officers to have been unfit for military service in any clime or season.

In reference to Baton Rouge, the Surgeon General, in his quarterly

report, speaks thus:

"The causes of death are not mentioned. The chief complaints were diarrhea, dysentery, and pleurisy. The troops, more especially the recruits, had been very sickly during the previous quarter, and many of the fatal cases were probably of long standing. The reports of last year, [ending 31st March,] show more sickness and mortality at Baton Rouge than at any other post. The total number of deaths in the army was 403, of which 91 occurred at this place, [the annual mean strength being 372,] being nearly a fourth of the whole. The only material cause assigned by Surgeon Harney is the exposure of the recruits to too much fatigue, during the warmest season of the year, in a climate to which they are unaccustomed."

At Fernandina, a decided improvement in the healthfulness of the troops was manifested. This happy result is attributed by Assistant Surgeon Weightman to the attention given to cooking and the establish. ment of regular messes, and the commutation of the ration of whiskey, (which was voluntarily relinquished,) for tea, coffee, and sugar. of the fatal diseases usually imputed to climate and locality arise, in a great measure, from defects in police and in the internal economy of the camp. Cleanliness is the life of an army. The Jewish code, enjoining ablutions and purifications as religious rites, has been quoted as a system adapted to a camp. The general police of the camp, no less than the observance of personal cleanliness, should, at all times, be rigidly en-Attention in the selection of recruits is likewise all-important, and equally so is the mode of employing them during the first year of service. The mere labor performed by the recruit is generally but a minor part of the inconvenience arising from his new mode of life; for the fatigue and exposure that may be very well borne by a soldier after twelve months' service, will often prove destructive to him who has not yet learned to take care of himself when relieved from duty.

The reports of the second quarter present nothing worthy of comment, save the remarkable healthfulness of the season. To this general remark, an exception is found at Baton Rouge and Fort Gadsden. The total of deaths for this quarter was 41, of which 16 occurred at the former and seven at the latter post. At Fort Scott, the other most sickly

position then occupied by troops, there was fortunately no death.

The third quarter presents a different aspect, the mortality being more than twice as great. The aggregate of deaths was 104, of which 67 occurred at three posts, viz: at Baton Rouge 35, Fort Scott and neighboring encampments 18, and Fort Gadsden 14, leaving but 37 for all the other stations. At the eastern posts, from Fort Sullivan to Fort Severn, including West Point and the arsenals of Watervliet and Pittsburgh, diseases presented a mild type and the ordinary variety, there being but one death. From Fort Washington to Fernandina, the reports exhibit but little sickness. At the post at Norfolk, there were two fatal cases of yellow fever. At Fort Scott, there were still in operation, the same causes of disease, -intemperance and irregularity of every description. The police was exceedingly defective; and the recruits, brought from the north, resembled the paupers which, in more recent years, have been transported to our shores from Europe. During this quarter, there were twelve cases of scurvy; and nearly every fatal case of disease might be traced to the abuse of spirituous liquors. "For the last two years," says Surgeon Lawson, "our cantonment has never been encircled by a chain of sentinels; nay, the resemblance scarcely of guard duty has been maintained within our command."

The men thus unrestrained gave loose to their inclinations, and wandered through the country by day and by night to the manifest prejudice of their health, and in violation of every rule of military service."

Moral as well as physical causes then, may be considered as having had an agency in producing the prostration of the 7th Infantry. Pros-

trate indeed it is, for it is crippled beyond recovery, and lies a wreck subject to the influence of every blast."

At the Barancas there were 24 cases of scurvy, attributed to the influence of local causes, and the want of vegetable diet; the deaths were 4, one of which arose from scurvy. At St. Marks, there were 7 deaths. The prevailing diseases were remittent and intermittent fever, diarrhæa, and dysentery. The following extract from the report of Assistant Surgeon B. King, renders the prevalence of disease no ways extraordinary:— "My hospital is very bad, and more or less wet at every rain; on the 16th September, the tide rose uncommonly high, which nearly inundated this place and the adjacent country; the water was a foot deep in the hospital; in fact, I visited my sick and went through it in a canoe. The bunks were sufficiently high to keep the sick out of the water; but this occurrence, as well as the dampness from the rains, had a very injurious effect on my patients, more particularly those laboring under dysentery and diarrhæa."

The civil practitioner has little idea of the disadvantages which attend the professional career of his military brother. Among civilians, the comforts of life, and the solicitude of friends, rob disease of half its terrors. The army surgeon, on the other hand, is not unfrequently placed in positions which preclude the practicability of affording protection to his sick from the inclemency of the weather, or he may find himself, despite his own exertions, deficient in medicines and hospital stores. As one day's action may bring under his care a greater number of violent injuries than the best employed civil practitioner could wit-

ness in a life time; so operations become indispensable, which might be deferred, or perhaps wholly avoided, in private life. Even the naval surgeon is placed in far more favorable circumstances than his army brother. The sailor fights at home, the hospital, medical supplies, provisions, and many little comforts, all within reach. Not so with the soldier, who often lies on the field of battle, wounded, destitute of food, bedding, or shelter; or torn from his comrades, is conveyed to distant hospitals in carts or litters, over broken-up roads or intricate mountain

passes.

At Fort St. Philip, intermittent fever was the prevalent complaint; and at the Bay of St. Louis, diarrhea and dysentery. At Baton Rouge, the total of deaths was 35, in a mean strength of 287, being one-third of the aggregate of the whole army. Surgeon Harney reports, "the most of the diseases, and particularly those of a severe type, are almost solely the consequence of severe labor and exposure. \* \* The men employed in getting timber in the swamps of the Mississippi, some 10 or 15 miles above this place, have been very subject to diseases which have proven of the most severe and fatal character." The 1st regiment of Infantry had in truth become "hewers of wood and drawers of water," much better qualified to shoulder a hod than a musket. All esprit du corps being lost, the officer, instead of drilling his men in war-like exercises, expended his military spirit in superintending fatigue parties, operating in dismal swamps. Baton Rouge, or more properly speaking, the swamps of the Mississippi, proved literally the grave of the regiment.

The reports from the western posts, including Plattsburg and Sackett's Harbor, exhibit nothing requiring special comment. The principal disease was intermittent fever, and the total of deaths was only seven.

During the *last quarter* of this year, the chief diseases were intermittent fever, diarrhea, and dysentery, which have, at all periods, proven the scourge of camps. The total of deaths reported was 126, being nearly equal to that of the corresponding quarter in the previous year, when the numerical strength of the army was nearly twice as great.

At Baton Rouge the number of important cases was nearly 300, and the mortality, compared with the previous quarter, seems to have suffered no diminution, 29 in a mean strength of 340 men having fallen un-

der the influence of disease.

By this time Fort Gadsden had been abandoned, and the 7th Infantry having been withdrawn from the swamps of the Flint and Chattahoochee rivers and the ponds around was *en route* towards the frontiers of Louisiana and Arkansas.

At St. Augustine, yellow fever prevailed. From the report of Post

Surgeon McMahon, the following extracts are made:

"The streets are very narrow and filthy. The houses, originally crowded and badly constructed, are for the most part in a state of dilapidation. Cleanliness has never been accounted a cardinal virtue by the Spaniards. Hence, the filth and dirt of a century have been suffered to accumulate in every street, lot, or other enclosure.

"The disease first made its appearance aboard the Schooner Alexander, which arrived at this port from the Havanna some time in the month of August. Whilst she was riding quarantine, the captain and crew died. Hence an opinion was prevalent that the disease was imported by that vessel; but by adverting to the period when the malady manifested itself in the city, and taking into view the fact that the schooner was not permitted to hold any intercourse, direct or indirect, with the land, either before or after the death of the captain and crew, it will be evident that this opinion is not founded in truth."

In the third week of September, several cases of "malignant fever" occurred; but the disease was not recognised as an epidemic until the close of the month. From this period the progress of the malady continued unarrested until the recurrence of frost in the latter part of De-

cember.

"Its ravages," continues Dr. McMahon, "were entirely confined to strangers. By this term, I would be understood to designate all persons not inured to the atmosphere of the city by nativity or a residence of a long series of years. Spaniards or natives, resident in the country, who had the temerity to venture into the city during its prevalence, were liable to its attack, though in a milder degree than the emigrants."

Examinations post mortem revealed the following appearances: The strongest marks of disorganization were observable in the alimentary canal. The stomach was reduced in size, incipient mortification was manifest, and it contained the peculiar black matter resembling coffeegrounds. Its pyloric portion and the duodenum were effused with black blood. The remainder of the primæ viæ, as well as the lungs, kidneys, spleen, liver, and biliary ducts, presented no organic lesions.

Post Surgeon McCoskry having fallen a victim to the epidemic, he was succeeded by the author of the above extracts, by whom 14 cases were treated, of which four proved fatal. Among the citizens attacked, who were principally Europeans, the mortality was much greater.

In September, according to the reports of the Surgeons, the 7th regiment of Infantry took up the line of march from Fort Scott—a position which had always been rife with disease, the character of which was rendered more fatal by the enfeebled constitutions of the men and their irregular habits. The sick list numbered 154 cases, mostly dysentery, whilst the whole command was much enfeebled by previous dis-Having descended the Appalachicola, and being encamped near its mouth, the troops were much exposed to violent storms of wind and rain, which caused a great augmentation of the sick list. Transportation having at length arrived, the troops embarked for New Orleans in seven sloops and schooners—the sick being stowed away with the other men and the baggage of their companies respectively; and until their arrival at the bayou St. John they were, by this arrangement in most of the vessels, deprived of medical aid. Here the men suffered exceedingly from the quality of the water, which had been put into casks containing the impure lees of wine. The cases of dysentery were consequently much increased in number, and rendered more fatal.

New Orleans, the sick were put into a liouse, in which they were exposed to the inclemency of the weather, and suffered equally from confined rooms and the want of fuel. These circumstances, although repeatedly reported by the several medical officers to the commandant, failed to receive the attention so imperiously demanded. The result is calculated to illustrate an important principle in military affairs, viz. that the comfort and transportation of the sick should, on the ground both of humanity and public interest, always engage the anxious solicitude of

the commanding officer.

Whilst encamped at this place, the troops suffered again from a storm of four days' continuance, by which the tents were prostrated and the grounds inundated. Divided into two battalions of five companies each. they embarked on the 6th November for their respective destinations. The sick of the detachment for Fort Selden, near Natchitoches, suffered much from exposure to rain; and so enfeebled were the vital energies of these men, that several perished during those nights when the thermometer indicated a sudden decrease of temperature. On the Red river, the boiler of one of the boats exploded, killing three men and injuring several, Arrived at Alexandria, the lowness of the water preothers seriously. vented the further progress of the boats; but having transferred the baggage to barges, and dragged them over the rocks, the rapids were soon cleared; and on the 17th December the command reached its destination, having been two and a half months on the route. In this debilitated condition, the troops were set to work in repairing the barracks and building an hospital.

The detachment destined for Fort Smith, Arkansas, was also much exposed on the decks of a steamer on the Mississippi, and in open boats on the Arkansas river, and suffered much from the inclemency of the

weather.

During the protracted movement of this ill-fated corps, it lost many of its members by disease and casualties; but, as the companies were frequently separated, and no regular reports were made on the march of the number or the manner of the deaths, the aggregate that perished is not accurately known.

The medical history of the 1st and 7th Infantry affords matter for the serious consideration of every military man, and teaches a lesson of experience which ought not to be forgotten by the Executive officers of

the Government.

Recruits should not be brought from our northern States and cities to the south in the summer season, and then be put immediately to work building barracks in which to shelter themselves. It is improper, except for some immediate or temporary object, to concentrate a large body of men in the immediate vicinity of swamps, lakes, and lagoons, and equally wrong to hold them there after the experience of a season establishes incontestibly the unhealthfulness of the position.

If troops must occupy unfavorable localities in a southern latitude, they should be divided into small commands; we know from experience that one hundred men may remain comparatively healthy at points where five hundred or one thousand will contract disease; and it is

manifestly against reason to put a body of men in motion for a long journey with one third actually sick, and the remainder just convalescing from disease. Had the troops left Fort Scott in March, instead of the last of September, 1821, the heavy loss by death and the invaliding of the men would have been saved to the country. The movement of masses of men in a crippled condition will invariably be attended with an aggravation of disease and corresponding loss of life.

Numerous widows and orphans to this day mourn the untimely fate of relations and friends who sank under disease during the disastrous movement of the army from Terre aux Bœuf to the highlands of the

Mississippi.

In this year, an epidemic bilious fever prevailed in every sec-

tion of the United States.

1822. The reports of the *first quarter* exhibit a remarkable degree of healthfulness at the military posts generally. The aggregate of deaths was but 54, Baton Rouge even being exempt from its usual degree of mortality.

The total of deaths in the second quarter was 41, of which 28 occurred at Baton Rouge, and 22 of these in the month of June.

There were, therefore, but 13 fatal cases at all other posts.

The continued prevalence of sickness at Baton Rouge was attributed by the Surgeon to the unceasing and laborious occupations of the men, acting in conjunction with the influence of a long-continued drought and the effects of habitual intemperance. The numerical strength of the command was about 300, and the total cases of disease 421. The prevailing diseases, more especially at the southern and western posts, were intermittent and remittent fever, diarrhæa, and dysentery. At Baton Rouge, there were 81 cases of the two latter, and 122 cases of the two former complaints.

In the third quarter there were 75 deaths. Of the cases under treatment, nearly one-half was intermittent and remittent fever, which prevailed to a great and fatal extent in many parts of the country. Of these cases, 540 occurred at Council Bluffs, in a command of nearly 500 men. The causes of this unusual sickness are referred by Surgeon Gale to the annual inundation of the low grounds selected for cultiva-

tion. Only one case, however, terminated fatally:

The prevalence of intermittent and remittent fever, in newly settled countries, is a very general occurrence. That a half-cultivated region is more sickly than a wilderness, or a country in the highest state of agricultural improvement, is a fact often remarked by the close observer of nature. In treating of the "Diseases of the early settlers of Ohio," Dr. Hildreth says, "They were sometimes attacked with malignant remittents in the summer, and pneumonias and pleurisies in the winter, but no serious epidemics appeared until partial openings had been made in the primeval forests, and the wet low grounds exposed to the action of a summer sun. Accordingly, we find that a partially cultivated region is more sickly than one which is either totally covered with forests, or in a state of complete redemption." This opinion accords entirely with the general experience of our army surgeons. The hunter, and the wild

borderer, who are the pioneers of the actual settler, suffer less from disease than the latter class. As the hunter and the borderer live like the savages around them, depending for subsistence nearly altogether upon fishing and the chase, their diseases are generally of a simple inflammatory character, arising from the combined influence of hunger, fatigue, and exposure to variable and extreme weather. In this unreclaimed state, the baneful exhalations which arise from the decayed vegetable matter covering the soil, seldom ascend beyond the higher foliage of the trees; but as soon as the permanent settler begins to fell the forest, leaving the branches to undergo decomposition in the heats of summer, and to turn up to the action of the sun the marshy ground, consisting of the accumulated vegetable deposition of years, deleterious agents are exhaled, giving rise to the most malignant epidemics. In the recent Florida campaigns, it is a common observation, that encampments near jungles seldom prove insalubrious, unless the soil is cultivated, or the trees and shrubbery are cut down, thus exposing the boggy surface to the influence of solar action.

Dr. Hildreth also notices the epidemics of 1821-'2-'3, as being of the most fatal character throughout the valley of the Ohio. The epidemic of 1823-'4, varying in its attacks from the mildest intermittents to the most malignant remittents, extended east of the Alleganies through Pennsylvania. The epidemic of 1823, says Dr. Cartwright of Natchez, was probably the most terrible that ever prevailed in the United States.

was probably the most terrible that ever prevailed in the United States. Dr. Heustis, formerly of the United States army, in some medico-to-pographical remarks on Alabama, observes, "For the first three years after my arrival in this State, in 1821–'2-'3, the country was dreadfully sickly, and the mortality great and appalling, more especially near the rivers. The whole country was then new, and the warmth and humidity of the seasons caused a great and rapid decomposition in the recently exposed and turned up vegetable matters. Many flourishing towns upon the rivers, which had risen up, as it were, by the hand of enchantment, received a sudden check, and became suddenly almost totally abandoned from death and desertion. Strangers from every part of the United States, invited by the fertility of the soil, the beauty of the country, and the serenity of the climate, brought together by fortuitous association, with foreign and unseasoned constitutions, were suddenly swept off by thousands. In many families there were not well persons sufficient to attend upon the sick and dying. Never have I known a time of such general calamity."

At Fort McHenry, in a garrison of 108 men, there were 62 cases and 2 deaths. Several circumstances are reported which throw some light on the nature of the "bilious cholic," which had prevailed there, for several years, in a very severe form. There were 56 recruits, all of whom were employed on police duty, whilst the old soldiers performed the necessary guard duties. The diet of both was the same. Both were exposed to the high temperature of the day; but the latter were subjected to the additional influence of the damp atmosphere of the night, laden with marsh effluvia. The extent of sickness in these two classes of men, was perhaps equal; but the cases of "bilious cholic" occurred only among the old soldiers, whilst the detachment of recruits

suffered much from intermittent fever. It would seem, then, that the poison, in a certain quantum, produced intermittent fever; and when conjoined with the effects of exposure to night air, the result was "bilious cholic." Between the skin and the liver there exists an intimate and powerful sympathy. In proportion as high atmospheric temperature excites these organs into inordinate functional action, are they rendered susceptible to the impressions of cold and dampness. Assuming, therefore, that both the recruits and old soldiers were equally exposed to the causes of intermittent fever, we are led to the inference that the conjoined influence of exposure to the night air produced a sudden torpor or inactivity of these two important enunctories, causing that group of violent abnormal manifestations, designated "bilious cholic." view of the subject accords with the appearance of similar affections at other points, and accounts for its unusual prevalence two years previously, when the men were employed in boats. Improper diet and irregular habits were the causes then assigned.

Bilious remittent or yellow fever appeared at Pensacola on the 7th August, and soon extended over the whole city. Between the 13th and 20th of the month, 20 deaths occurred; and on the 26th, the troops abandoned the town and encamped on a dry and elevated position in the vicinity. As some men were necessarily left behind to guard the public property, most of the cases occurred among them. The total number of cases was 52, of which 11 proved fatal—a relative mortality much lower than that among the civil population. The three medical officers, Drs. Elliott, McMahon, and Merrill, were seriously attacked, the first of whom fell a victim to the disease. The following report is from Assistant Surgeon McMahon, whose opinions derive additional importance from the fact that he had witnessed the disease, the previous year,

at St. Augustine :-

"Pensacola is situated on the bay of that name, in latitude 30 deg. 29 min. N., and longitude 10 deg. W. It is bounded on the south and east by the bay, on the north by bayou Tacha, and on the west, by the little bayou and an extensive pine barren. A chain of heights, whose maximum elevation does not exceed 60 feet, extends along the rear of the town, and is the source of a never-failing spring, which supplies the

inhabitants with water.

"From an attentive examination of its natural position, I am induced to believe that this city holds out a fine prospect for salubrity. Exposed in front to the sea, and sufficiently remote, on every other side, from swamps or large bodies of fresh water, it possesses so much elevation as to have a constant and free ventilation, whilst the soil of the city, as well as of the vicinity, is one unvaried bed of sand, mingled sparsely with a rich vegetable mould.

"The streets are wide and spacious, intersecting each other at right angles. Deprived of pavements and the protecting shade of trees, the sand, by which they are covered to the depth of seven or eight inches, acquires, during four or five months of the year, such an intense degree of heat as to render all attempts at walking abroad, during the day,

manifestly dangerous.

"The houses, generally built of wood, are, many of them, in a state of decay. The lots and yards containing the accumulated filth of years, are extremely offensive. The privies being very much neglected, are abominably fetid. The soil of the gardens being in a great measure artificial, vegetation is very productive; and as the leaves and offals are suffered to remain on the surface, decomposition, favored by heat and moisture, rapidly ensues.

"To these prolific sources of miasmata may be added, a total neglect of cleanliness in the personal habits and domestic economy of the in-

habitants.

"An unusual degree of heat and moisture during the summer, has tended effectually to bring those exciting causes of disease into operation. It cannot, therefore, be doubted that they were amply sufficient to produce malignant fever in a climate where, during the summer months, an intense degree of heat prevails, and where the average annual quan-

tity of rain that falls is rarely below fifty or sixty inches.

"The first five months of the year were remarkably healthy. month of June was ushered in by the prevalence of a fatal distemper among brute animals. Its operation was particularly marked upon dogs, The mortality among the two last was, indeed, foxes, and panthers. immense; numbers being found every where dead in the woods. somewhat singular that four, five, and six bodies were generally discovered collected about the same spot. During the same period, a general state of mal-aise prevailed amongst the inhabitants, manifesting itself in depression of spirits, loss of appetite, and apathy to every species of exercise and amusement; but no case of fever wearing a bilious or malignant type had as yet occurred. Towards the close of the month, however, a number of cases of bilious remittent fever were observed; but inasmuch as they were found to prevail only amongst the poor and laboring classes and those of dissolute habits, they excited no suspicion of the approaching catastrophe.

"About the first of July, a brig having a cargo of cod-fish, most of them in an unsound or putrid state, arrived from the Havanna. As the captain and crew were in apparent good health, the boarding officer, at the quarantine grounds, permitted her to pass. She lay eight or ten days at anchor before the town, when a remonstrance was made to the board of health by a number of the inhabitants residing on Bay street, representing her as a nuisance of the most noxious character. This served to awaken them, for a moment, to some sense of their duty. An order was issued directing the brig to depart the harbor forthwith; but it was now too late, as the evils against which it intended to guard, had been already committed. The fish, for the most part, had been landed and sold, as the captain phrased it, "for a mere song." Thus a new source of pestilential effluvia was introduced, tending to rouse into action the dormant enemy within the bosom of this ill-fated city.

"July was rendered remarkable by the immense quantity of rain that fell, and by a storm of some days' duration, which prevailed from the southwest, and caused considerable injury to the town and the shipping

along the coast. It may, on the whole, be pronounced a healthy month,

as the cases of disease were few and of a mild character.

"The month of August was ushered in by very hot calm weather. On the 7th, a young lady, who had recently arrived from New Orleans, died with the black vomit. Her attending physicians, Drs. Elliott and Bronaugh, had no suspicion of the real character of the disease, until this last fatal harbinger of death made its appearance. About the same time, two other cases of malignant fever occurred in a quarter of the town which had been considered the most healthy. As the symptoms in these cases were very mild in appearance, and as the subject of one was a Spanish lady, long a resident in the climate, the physicians labored under the same delusion as in the first case: both patients died on the 12th with black vomit. On the 13th, the board of health publicly announced the existence of the disease, and warned all the inhabitants able to remove, to retire to the country. At the same time, they ordered the putrid cod-fish to be seized wherever found, and buried without the limits of the city. This order was very imperfectly obeyed; and as the fish had been purchased by persons residing in every quarter of the town, the effluvia hence arising, during the warm still mornings of this month, were intolerable. In addition to this evil, the board caused fires to be kept continually burning in every direction, by which the heat of the atmosphere, already excessive, was redoubled. The pestilence, however, became more rife, and the disease acquired new malignity.

"Between the 13th and 20th, upwards of 20 deaths took place. The disease now spread rapidly, and with a degree of malignity rarely equalled in the annals of this destructive malady. Out of a population of 1,000 souls, upwards of 200 have already become its victims. Neither age, sex, complexion, occupation, or residence, has afforded any exemption from its fatal ravages. The old and the young, the native and the emigrant, the white and the black, have been alike subject

to its baleful influence.

"On the 26th the troops evacuated the town. Up to this period, their health remained unusually good. A knowledge of this fact prevented many citizens from retiring, and thus many valuable lives were sacrificed. Believing that this singular exemption of the soldiery was due to their peculiar habits and mode of living, whiskey and salt pork were now considered as prophylactics—and, as might have been anticipated, all those who had recourse to the supposed preventives, fell speedy victims to the disease.

"A scarcity of tents and the want of buildings for the reception of the sick and the public property, rendered it necessary that attendents and a guard should remain in town, to watch over them until convenient sheds were erected for their protection. As soon as this measure was effected, they were removed to the camp; but few, if any, escaped the infection. And here I would offer a tribute of praise to the salubrity of our present encampment, and to the humane and benevolent conduct of the officers, who have invariably promoted every measure, tending to the comfort of the troops and the preservation of their health. In no instance has a case of fever, originating here, fallen under my

notice, and from every other disease, incidental to the season and cli-

mate, we are equally exempt.

"It will be seen, on reference to the quarterly report, that out of 36 cases of malignant fever contracted by the troops, only ten have died. This mortality, compared with that in town, presents a very low ratio. Among its first victims was Dr. Elliott, an officer whose loss cannot be too much regretted; his amenity of manners and correctness of conduct

entitle him to the lasting esteem of all who knew him.

"The general symptoms of this disease are marked by a near resemblance to those observed last year at St. Augustine; such as, weariness, restlessness, loss of appetite, excruciating pains in the head and back, turgescence of the vessels of the eye, and in some cases a watery suffusion and a wild stare painful to the beholder, obstinate costiveness, tongue covered with a dark fur with its edges very red and swollen, the thirst excessive, and the skin hot, dry, and constricted. In most instances, violent arterial action, indicating the use of active depleting meas.

ures, attends.

"These symptoms constitute the first stage of the disease, and, if not speedily removed, are followed by others of a most alarming character. The pulse sinks rapidly; the skin becomes cold; the patient experiences an indescribable sense of weight and oppression about the precordia; violent gastric irritability supervenes; and tremors of the limbs and fainting fits occur, whenever the patient attempts to rise or go to stool. Delirium succeeds, and if not speedily arrested, the patient complains of a sense of heaviness in his head, as if it were about to fall from his shoulders by its own weight. A burning sensation is next experienced in the thoracic and abdominal regions; the tongue becomes covered with a yellowish black sordes; the stools are liquid and dark green, mixed with floculi of a deep brown color; and the urine is small in quantity and passed with great difficulty. The patient now becomes alarmed; he catches hold and endeavors to detain every person that approaches his bed-side; the weight of clothes, even that of a sheet, becomes intolerable; the stools are involuntary, and assume a dark grumous appearance. The patient complains of a sense of choking, or constriction in the superior region of the larynx, to which point he refers the whole of his disease. Cold, clammy sweats next ensue; the pulse becomes imperceptible at the wrist; then follow subsultus tendinum, singultus, convulsions, and hæmorrhage from the mouth, nose, eyes, and ears, and in some cases from the extremities of the toes and fingers—the immediate precursors of death; and finally, black vomit, that ever fatal symptom, puts a period to the patient's sufferings.

"Only one case of recovery, after the secondary train of symptoms had set in, has fallen under my notice. The first twelve hours are in general decisive of the patient's fate. If prominent symptoms are not then relieved by active depleting measures, all hopes of recovery may be abandoned. Gastric irritability, continual watchfulness, dread of approaching dissolution, and sinking of the powers of life, succeed one another with such rapidity that the patient soon succumbs under their

accumulated weight."

At the Barrancas there were 9 deaths, of which 7 arose from bilious The report from Baton Rouge presents the usual mortality; the average strength of the command was 245, the total number of cases 281, and the deaths 29. Of intermittent fever there were 101 cases, and of remittent 45. The post at St. Marks was very healthy from the beginning of the year until August, when bilious fever of the remittent type made its appearance. The total of cases was 68, and the The local or exciting causes were not dissimilar from deaths but 5. those in operation at Pensacola. The causes enumerated by Assistant Surgeon Stevenson, are as follows: the unusual low tides, by which a large quantity of putrid vegetable and animal matter was exposed to the action of the sun; the prevalence of east winds, coming over an extensive marshy country; and the general failure of summer vegetables, which are very essential to the maintenance of health in warm climates. To these exciting causes must be added the more important and essential one, viz. the peculiar general constitution of the atmosphere, (constitutio aëris,) indicated by the simultaneous prevalence of remittent and bilious fevers in every district of the United States. As these local causes are found in other places and in other seasons to a much greater extent without producing similar effects, it is obvious that some peculiar meteorological condition of the atmosphere is essential to give potency to these morbific agents. A fact in regard to the brute creation, observed in the black death of the 14th century, and in many other epidemics, has been noticed in the report of Dr. McMahon. Like the Grecian plague before Troy,

"On mules and dogs th' infection first began, And last the vengeful arrows fixed on man."

As animal decomposition is regarded by many as innoxious, the agency ascribed by the same medical officer to the putrid fish at Pensacola, as "a new source of pestilential effluvia," will be doubted by this class of reasoners. There seems to be, however, pretty strong evidence in favor of the affirmative. Yellow fever was clearly traced to the very same source, as an exciting cause, in Newburyport in 1796, and in New London in 1798. That putrid oysters in the shell, and hides in a state of putrifaction, exert the same agency, has been often strenuously maintained.

The north-western posts, and those along the eastern coast, generally require but little comment. At Prairie du Chien, the diseases arising from the general epidemic constitution of the atmosphere, assumed chiefly a dysenteric form, followed by intermittent fever. At the Sault St. Marie, diarrhea was the only disease of any consequence: and at Samina Parairie posts and a survival provided the sault statement of the sault statement.

guina Bay, intermittents and remittents prevailed.

The aggregate of deaths, reported this quarter, was but 65—a mortality which, when we consider the extent and fatal character of diseases in general during the summer, was very low; and which, at the same time, afforded a practical comment on the efficiency of the medical corps of the army.

The following case of *ileus*, which occurred in the hospital at St. Marks, under the care of Assistant Surgeon Stevenson, is replete with

interest:

On the 11th July, a private soldier of the 4th regiment of Artillery was reported sick with the usual symptoms of spasmodic cholic. The ordinary remedies were employed, but the stomach rejected every thing; whilst the bowels continued, for three days, obstinately constipated. On the evening of the 12th, the patient had stercoraceous discharges from the stomach, attended with cold sweats and a small weak pulse. section, blisters, and enemata, were used without any abatement of the alarming symptoms, until the evening of the 15th, when he had a copious and fetid alvine evacuation. On the morning of the 16th, he discharged per anum a portion of the small intestine,  $6\frac{3}{4}$  inches in length. As the calibre, thickness, and texture of this organized substance precluded the possibility of mistake, the inference is obvious, that the invaginated portion had become gangrenous and sloughed off. The patient recovered his health slowly, and on the 23d of July returned to quarters. On the 14th August he was attacked by the prevailing epidemic, and on the 18th he died. It is a matter of serious regret that the state of the medical officer's health was such as to render him unable to make an autopsic examination.

During the fourth quarter, the total mortality of the army was 42. Of these, 15 occurred at Baton Rouge, the strength of the command being 238, and the number of cases 276. The prevailing disorders were diarrhæa, dysentery, and fever of the intermittent and remittent type. At Fort San Carlos de Barrancas, 12 died of malignant fever out of 24 cases. The strength of the command varied from 90 to 300 men, and the total of cases under treatment was 66. "The cases which proved fatal," says Dr. Bell, "generally terminated on the third, fourth, or fifth day, the patient having sunk into a typhoid state, accompanied by a vomiting of black matter resembling coffee-grounds." At Pensacola, there was one death from the same disease. The following report of Dr. McMahon is a continuation of his remarks given in the preceding

quarter:

"Since the first part of this report was transmitted, the malignant fever continued, but with diminished violence, until the 27th of November, when the occurrence of a severe frost put a final stop to its ravages.

"From the observations made during the past and present season upon this disease, I conceive it impracticable to lay down or pursue any regular mode of treatment. At St. Augustine, for instance, the employment of the lancet or mercurial preparations was invariably accompanied by fatal results; whereas at Pensacola the reverse took place. It has frequently happened that similar remedial means, employed under apparently similar circumstances, have often produced, at the two places, various and opposite effects. Carefully to watch its approach and progress, and to combat and obviate symptoms, was the "unica et ultima regula," which I observed in the management of this insidious malady."

Before and after the 9th of October, the disease presented a character diametrically opposite. Prior to the above period, there was an excess of arterial action requiring a free and liberal use of the lancet; but subsequently, the vital powers manifested such a loss of energy that the strongest stimulants were imperiously demanded. The disease, at this

period, ran its course in 18 or 24 hours, and if stimuli were not exhibited on the first indication of an attack, the patient's fate was irrecoverably sealed.

The aggregate of deaths from all the other military posts, during this quarter, was but 11. At Council Bluffs there were 428 cases, but none proved fatal. At Fort McHenry, cases of "bilious cholic" were still reported; and at Fort Severn, also, it continued to prevail. No case, however, resulted fatally.

In the *first quarter*, the mortality of the army, according to the medical returns, amounted to 35. Of these deaths, 13 occurred 1823. at Baton Rouge, at which point dysentery and intermittent fever

were as rife as usual.

During the second quarter, the aggregate mortality was 50, Baton Rouge having furnished 29 fatal cases. In the corresponding quarter of the prior year, the total of deaths was 41, of which 28 were reported at Baton Rouge. The garrison now consisted of about 400 men, of whom three-fourths were recruits. The continued prevalence of disease is ascribed by the Surgeon, as in former reports, to the operation of the following causes: 1. Intemperance; 2. Severe fatigue duty; and, 3. The consequent exposure, especially among the recruits who were unacclimated. These causes, in conjunction with the change of diet, and other habits to which a recruit is necessarily subjected, are regarded by Surgeon Harney as adequate to the explanation of the extent and fatality of diseases.

In the third quarter, the deaths numbered 53. Of these, 24 occurred at Fort Smith, (Arkansas Territory,) 6 at Council Bluffs, (Missouri,) and 3 at Saguina Bay, (Michigan,) leaving the small mortality of 20 at all other posts. It may be worthy of remark that Baton Rouge, during the summer, was occupied by very few men. At most of the southern and western stations, intermittent and remittent fevers were the prevailing maladies. At Fort Smith, the endemic assumed all the manifestations of a high grade of yellow fever; but, fortunately, its fatality was limited to a very short period. The strength of the command was 200, and the total of cases, during the quarter, was 277. The subjoined report is from Assistant Surgeon (now Surgeon) C. A. Finley.

" FORT SMITH, October 15, 1823.

"Sir: From the accompanying report of the quarter ending the 30th September, you will observe that the mortality of this post has been unusually and alarmingly great. Prior to the 5th of September, our diseases did not assume a character calculated to excite any anxiety, but were such as we anticipated in this season and climate. About the period just named, the fever became more rife, and manifested a violent grade of action. When first attacked, the patient complained of slight chilliness, which was soon succeeded by fever, general pains, most severe in the head and loins, and excessive irritability of the stomach, attended with continued vomiting and excrutiating pain in the same region. Although the application of a blister invariably relieved the pain, it had not the effect of arresting the vomiting, which only ceased with death. The matter discharged from the stomach was black, and had

the appearance of clotted blood. The pulse was quick and soft, and the eyes were red and painful. After the first 12 or 18 hours, delirium eusued; the tongue became black, rough, and dry; the thirst, owing to the irritability of the stomach, was unquenchable; and finally, comper and convulsions announced the approach of death.

"In the treatment, I adopted, after giving an emetic and brisk purgative, the mercurial plan; but this was not attended with much success, until, after some experience, I premised the cold shower bath. The disease now yielded, nor did I lose a case in which the bath was used

within the first twelve hours."

During the last quarter, intermittent fever, diarrhæa, and bronchial affections, were the maladies most rife. The aggregate mortality was 56, of which 13 were reported at Baton Rouge. It is to be regretted that we have not more detailed accounts in reference to the medical topography of this station. In the quarterly report, we are informed merely that "the post has been garrisoned by four companies, and about 40 prisoners; the latter are generally very sickly, and almost without pay or clothing." At Tybee Island, near Savannah, the whole command, including women and children, were attacked with "autumnal fever." The number of men present was 41, of whom nine died, and eight or ten were rendered nearly unfit for service.

In the *first quarter*, the aggregate mortality was but 23. No 1824. disease exhibited any peculiarities demanding comment. At

Baton Rouge, five recruits from the north died.

The second quarter presents a total of 30 deaths. At Baton Rouge there were eight fatal cases, but the causes from which they arose are not specified. At Petite Coquille, the cases of bilious fever were pretty numerous, of which one only proved fatal. The medical officer reports that "the weather during this quarter has been unusually hot, no rain having fallen for the last six weeks. The marshes which environ us on every side are no longer covered with water; and the exhalations from them at night are intolerably fetid. To these causes, in conjunction with the unfitness of the buildings occupied as barracks, may be attributed the occurrence of so many violent cases of bilious inflammatory and remittent fever." Amongst the causes of disease enumerated by surgeons stationed at southern posts, reference is frequently made to the circumstance of troops from the north being sent to that climate at improper seasons.

During the *third quarter*, the mortality was unusually low, the aggregate of deaths being but 35. The garrison of Fort Mifflin, as in the summer months of former years, suffered severely from febrile affections of an intermittent and remittent type; but no case terminated fatally.

There are 35 cases of opthalmia reported, some of which were marked by a very high grade of inflammatory action. The unusual prevalence of this disease was generally ascribed to the peculiar form of the forage-cap worn by the soldiers.

At Fort Moultrie, Charleston Harbor, 12 cases of yellow fever appeared. The strength of the command was 70; and although the mortality was very great in the city and its vicinity, no fatal case occurred

among the soldiery. This immunity from the epidemic must, in a great measure, be attributed to the timely precaution of Assistant Surgeon Richard Randall, by whose advice the troops were removed to the sand-beach on the opposite end of the island. The day after the removal, there were brought to the hospital two new cases, which proved to be the last. "The disease has been treated," says Dr. R., "in my practice by pretty free depletion, mild mercurials, and active cathartics; and my greater success warrants me in believing that it is a better plan of treatment than the exclusively mercurial one, which is generally pursued by the physicians of Carolina." At Pensacola, there were two deaths from yellow fever reported. The diseases at all other posts were so entirely free from peculiarity as to require no comment. The stations on our northwestern frontier, the northern chain of lakes, and the Atlantic sea-board north of Philadelphia, have as yet, indeed, called for little notice.

Among the diseases of the last quarter of the year, the principal were intermittent fever, diarrhea, dysentery, and the usual inflammatory affections of the season. In Charleston harbor, in a command of 90 men, 15 cases of yellow fever occurred, two of which terminated fatally. Opthalmic affections still continued to prevail, 35 cases having been reported for the quarter; and, during the year, several men were discharged the service in consequence of loss of vision. A special report on this subject having been made to the War Department by the Surgeon General, certain alterations in the shape of the forage cap were directed; and as there were but three cases of opthalmia reported in the succeeding quarter, the presumed cause was inferred to be the legitimate one. these affections, however, became year after year more rife, it affords another evidence of the difficulty and uncertainty of medical causation. Our knowledge of cause and effect in regard to a succession of events, is founded entirely on the observation of a uniform sequence in the phenomena; and to assign to these successive events the relation of uniform sequence, is often a step of the utmost perplexity in every department of science. In the prosecution of medical investigations, this is more especially apparent in our efforts to determine the effects of external agents as causes of morbid action, the effects of external agents as therapeutic means, and the connexion of certain functional and organic lesions of internal organs with certain external expressions or signs of disease.

The aggregate mortality of the quarter was 34. At Baton Rouge the mean strength was 137, and out of 117 cases there were nine deaths; but in regard to the character of the prevailing diseases, or the causes of

their continuance, the report furnishes no information.

As a general conclusion from the reports of the whole year, it appears that the mortality was owing chiefly to diseases arising from the influence of causes, with the exception of ardent spirits, beyond the control of man; whilst those diseases which depend more particularly upon police and discipline, as typhus fever, diarrhea, and dysentery, have been neither numerous nor fatal. The fact that but seven deaths occurred from the latter complaints during the year, affords presumptive evidence that these important points of duty were rigidly enforced.

The annual aggregate mortality was 122. Among the causes of death the abuse of spirituous liquors holds a prominent rank. To this pest of the army forty deaths may be traced, under the different forms of liver disease, dropsy, apoplexy, &c. To suppress this growing evil, Dr. Lovell, with laudable zeal, ceased not to urge upon the Secretary of War the necessity of abolishing the use of whiskey among the troops, or of supplying a less deleterious substitute. He maintained that it was the cause, not only of many of the irregularities of service, but of vast expense to the public treasury by the increase of the sick-list, and by premature deaths and discharges. In consequence of incurable diseases proceeding mainly from this cause, 108 were discharged, during the previous year, from the hospitals alone.

As the post at Baton Rouge has demanded comment in every quarterly report, an abstract of the last six years may afford interesting results. The mortality of the 1st regiment of Infantry at this post is, doubtless, higher than that of any other regiment since the organization of our Government. To ascertain the exact ratio it was necessary, as the condensed records kept in the Adjutant General's Office at that period could not furnish all the essential data, to collect the information from musty regimental returns. Although some of these files are now imperfect, yet I had the good fortune to find, with one exception, all the monthly returns of

the 1st regiment of Infantry at Baton Rouge complete.

ABSTRACT showing the annual ratio of mortality, per centum, of the 1st regiment of Infantry at Baton Rouge, from 1819 to 1824 inclusive.

	1								1			
	18	19	18	20	18	21	18	22	18	323	18	24
months.	Strength.	Deaths.										
January	173	1	301	5	410	4	381	5	318	2	123	3
February	166	0	293	3	416	4	381	5	346	6	134	2
March	203	1	280	2	397	4	360	2	394	4	134	0
April	189	1	273	2	335	3	376	5	395	6	153	2
May	251	5	271	1	328	2	350		384	12	153	0
June	253	6	346	3	462	11	315	20	431	8	152	$\begin{array}{c} 0 \\ 2 \\ 1 \end{array}$
July	285	1	408	11	291	9	307	8	479	6	136	
August	286	3	396		271	11	301	12	*		133	5
September	212		381	12	300	7	295		141	0	133	0
October	187	4	368		213	10	293		130		133	0
November	191	1	385		400	11	299		123		125	0
December	333	1	408	5	407	5	292	6	123	3	154	9
Total	2729	29	4110	76	4230	81	3950	85	3264	55	1663	24
Mean strength and annual ratio of Deaths per cent.	227	12.8	342	22.2	352	23.0	329	25.8	297	18.5	139	17.3

<sup>\*</sup> Six companies are reported at Camp Clark near St. Louis, but of the position of the other four companies there is no record.

ABSTRACT exhibiting the deaths, and the number of cases under treatment, during the same period.

YEARS.	Mean strength per Adjutant General's re-	Cases treated per Medical	Deaths per Adjutant Gen-	Ratio per 1000 mean strengtl				
	turns.	returns.	eral's returns.	Treated.	Died.			
1819	227	_ *	29		128			
1820	342	1878	76	5.492	222			
1821	352	2041	81	5.798	230			
1822	329	1420	85	4.322	258			
1823	297	1090	55	3.670	185			
1824	139	514	24	3.698	173			
Total -	1686	6943	350	-	-			
Average	281	1389	58	4.596	208			

<sup>\*</sup> No report.

It appears, then, that the ratio of mortality, on an average of six years, is nearly 21 per cent., a result unprecedented in our military annals. In 1822, the most fatal year, the mean was nearly 26 per cent. As there were, among every 1,000 men, 4596 cases under treatment in the course of the year, it follows that every man, on an average, must have been on the sick list once in every two months and nineteen days.

It is deemed unnecessary to extend these remarks, as the medical history of the regiment has been developed at every step of our progress. The question, why the post was not abandoned or a new system of internal economy adopted, is doubtless suggested to every mind. It were useless, at this late day, to inquire into the motives that influenced our public councils. Suffice it to say, that the late Surgeon General, in a report to the Secretary of War, as early as November, 1821, uses the following language: "The duties required of the soldiery at this post, since the commencement of the public works, have not only been laborious and severe in the extreme, but inhuman and unjust. The number of cases treated, the deaths, and desertions, will, I think, conclusively prove how impolitic have been the measures pursued. It also appears that, whilst the mortality amongst the troops has been so great, the citizens in the vicinity are quite healthy."

The first quarter of this year was remarkably healthy. The aggregate mortality was 31, of which seven arose directly from intemperance, and the same number from phthisis pulmonalis,

leaving but 17 from all other diseases.

In the second quarter, the aggregate of deaths was still lower, being but 24. Notwithstanding the change in the forage cap, alluded to in the previous year, 67 cases of opthalmia are reported this quarter, and 58 in the succeeding one.

In the *third quarter* there were 46 deaths. The stations along our northern Atlantic coast were healthy, with the exception of Fort Constitution at Portsmouth. Nearly the whole garrison was attacked with

cholic and cholera morbus, but no case terminated fatally. At Fort Delaware, nearly every man suffered from diarrhæa and intermittent and bilious remittent fever. In connexion with the heat and dryness of the season, Assistant Surgeon S. B. Smith mentions, among the accidental causes, the intemperance of the soldiery, who were employed all summer in enlarging the *fossé* surrounding the fort; and as the bottom consisted of soft alluvial matter, he ascribes the prevalence of the febrile

affections, in a great measure, to its agency.

The company stationed at Fort McHenry, in consequence of the insalubrity of the position during the summer months, encamped, as had been found necessary for several years previously, about two miles from Baltimore; and in this position the troops enjoyed good health. At Fortress Monroe, fevers of the intermittent and remittent type, as well as typhus, prevailed extensively, but two cases, however, proved fatal, the result of the last named disease. At Fort Moultrie, the ratio of sickness was also very high; for, among 90 men present, there were reported 46 cases of cholic, dysentery, and bilious fever; but one case, however, terminated fatally.

At Bellona Arsenal, near Richmond, intermittent and remittent fever prevailed, as usual, to a great extent. Although the fatal cases were few in number, nearly all were attacked, and recovery was exceedingly slow in consequence of relapses. The locality being regarded very insalubrious, it was recommended that the troops form an encampment, a few miles from the post, during the summer months. The good effects experienced from this measure at Fort McHenry, and the partial advantage at the arsenal near Augusta, Ga., were urged in its favour.

At Savannah, the troops, since their removal from Tybee island, were more healthy. The diseases to which they were now exposed, are attributed to the rice fields in the immediate vicinity of the barracks.

At Augusta, all the garrison suffered from the "country fever," except two men; and even on the 31st December, very few were fit for duty. The only advantage derived from encamping on the "sand hills," during the summer months, was, that fewer cases proved fatal and relapses were less frequent. The liability to disease seems not to have been diminished; for, as it was necessary to keep a guard at the arsenal, (then situated on the Savannah,) the men were in turn exposed to this miasmatic atmosphere; and nearly every case of a severe character occurred among those relieved from this duty. "So long as a company," says the Surgeon General, "is kept at this place, no means, it is believed, can be adopted to prevent an annual visitation of fatal disease, and the number of cases seems only to be limited by the number of men present."

On the 15th July, yellow fever appeared at New Orleans. Among the troops stationed there, three cases occurred, all of which terminated favourably. On the 1st of August the whole detachment moved to Baton Rouge, in which position it continued, in general good health,

until the subsidence of the disease at New Orleans.

In a mean strength of 265 at cantonment Gibson, there were in September 114 on the sick-list. The prevailing maladies were dysen-

tery and intermittent fever. There was one death from epilepsy, and among 9 cases of typhus fever, 8 terminated fatally. Typhus, properly so called, it may be well to remark, is a comparatively rare disease in our abundant country. Remittent fever, assuming in its progress a typhoid type, is doubtless often reported under the name of typhus fever.

On the Missouri, Upper Mississippi, and the Lakes, although many of the troops suffered from enteritic affections and intermittent fever, there were but six deaths. At Detroit, although the position is salubrious, most of the soldiers were sick during the present quarter. This arose from the circumstance of their being employed in cutting a road near the River Rouge, a result usually attending such details. The strength was 77, the total of cases 76, and of deaths 4.

The aggregate of cases during the summer was unusually great; but the ratio of mortality, with the exception of that of cantonment Gibson, was comparatively low. "This fact affords," says the Surgeon General, "presumptive evidence that the officers of the medical staff continue to merit their well-earned reputation for professional skill and attention to

duty."

In the last quarter there were 53 deaths. No reports were received from Savannah and Petite Coquille, private physicians having been employed at those posts. At cantonment Gibson, nine deaths occurred—four from dysentery, two of apoplexy, and three of typhus fever. The strength was 249, and there were for some time upwards of 100 on the sick list. At Augusta, the whole command still suffered severely from bilious remittent fever; the average strength was 27, the total of cases 31, and of deaths 7. At New Orleans, there were 51 cases of varioloid, of which six proved fatal. In the southern and western States, this disease prevailed to a considerable extent, and with more than its usual fatality. The detachment of the 1st regiment of Infantry, stationed in the Creek Nation, was also much afflicted. All the other posts were happily exempt from more than ordinary sickness.

The following remarks are extracted from a special report made by the late Surgeon General to the Hon. James Barbour, Secretary of War, on the subject of a contemplated exchange of posts between the 1st and 4th regiments of Artillery. It may not be amiss to say, that the experience of later years, when it has not been unusual to transport troops, at all seasons, from the Canada frontier to our southern borders, and vice versa, does not warrant to their full extent the apprehensions entertained. It is, however, observed by Dr. Lovell, "that the change, it is believed, will not materially affect the health of the troops, unless the sea-

son should prove a sickly one."

The remarks are as follows: "From the reports of surgeons stationed from Charleston to Baton Rouge, it appears that whenever detachments have arrived from the eastern or middle States, nearly every man has been attacked, during the first summer, with the diseases peculiar to the country; and that two-thirds of the cases of severe sickness occurred among those unaccustomed to the climate. Even at St. Augustine, which is one of the healthiest posts, disease prevails on the arrival of a new detachment, and is for the most part confined to it. This effect is

more especially to be expected at the arsenal near Augusta, at Savannah, and Fort St. Philip. During the last year, which was by no means a sickly one, every man, with the exception of two, stationed at the first named place, was severely attacked with the autumnal fever. There were seven deaths, including the Surgeon and Quartermaster; and at the close of the year, very few of those that escaped were fit for duty. The same complaint prevails annually at Fort St. Philip to a great ex-

tent, but it is seldom as fatal as at Augusta.

"From these facts, in connexion with the well-known effects of a southern climate on northern constitutions, it is to be presumed that the exchange between the 2d and 4th regiments of Artillery will be followed by a considerable increase of sickness during the first year, and especially at the three posts above mentioned; and from the concurrent testimony of all who have attended to the subject, there can be no doubt that the period at which the movement is made is of essential impor-That it should be as late as possible in the fall of the year, is evident from the fact, that even natives of those parts of our southern country subject to autumnal fevers, find it necessary, after an absence of a year or two, to return at this period. If the exchange be made in the spring, it would bring the northern regiment to their posts precisely at the time when they would be most exposed to the debilitating effects of the climate. With systems under the influence of the elastic and bracing air of a long and pretty severe winter, they would arrive at their stations just about the time when the more variable and less oppressive heat of the spring is yielding to the settled and high temperature of They must, therefore, become eminently disqualified, during the months of June and July, to resist the fatal endemics of August and September. Were the 4th regiment, however, to leave their posts in the fall, and relieve the 2d, so as to bring them to their stations about October and November, they would be in a measure prepared to withstand the diseases of the succeeding year. This subject has been frequently mentioned in former reports, in consequence of the representations of surgeons, showing the bad effects of sending recruits, at an improper season, to the southern stations."

The Florida war, as will be shown hereafter, has had no material effect upon the annual ratio of mortality. The mean mortality of the whole army for 1836–'7-'8, ascertained from monthly regimental returns, is but a fraction higher than the average of 10 years, (from 1829 to 1838 inclusive,) the former being 4.8 and the latter 4.4 per centum; and is lower than the respective ratios of 1832–'4-'5. Here, then, is a fair exhibition of the consequences of successive Indian campaigns con-

joined with the effects resulting from change of climate.

In concluding the observations of this year, I shall present several tabular abstracts, compiled from a report showing the number of deaths and desertions in the army for three years, made to Congress by Adjutant General Roger Jones in the winter of 1825–26.

The following table exhibits the annual strength and the number of deaths in each regiment, for the three years terminating respectively on

the 30th September, 1823-'4-'5:

TABLE exhibiting the annual strength and the number of deaths in each Regiment, for the three years terminating respectively on the 30th of September, 1833-'4-'5.

1			
f'y.	Desths.	31 10 13	54
7th Inf'y.	Strength.	468 432 492	1392
f'y.	Deaths.	20 16 6	45
6th Inf'y.	Strength.	379 423 502	1304
ıf'y.	Deaths.	12 10	36
5th Inf'y.	Strength.	436 510 388	1334
ıf'y.	Deaths.	11 12 19	42
4th Inf'y.	Strength.	323 408 440	1111
ıf'y.	Deaths.	111 12 12	28
3d Inf'y.	Strength.	375 484 421	1280
f'y.	Desths.	8 7 111	56
2d Inf'y.	Strength.	427 485 507	1419
f'y.	Deaths.	56 47 38	141
1st Inf'y.	Strength.	502 498 487	1487
rt'y.	Desths.	25 24 29	78
4th Art'y.	Strength.	439 467 444	1350
rt'y.	Deaths.	27.2	69
3d Art'y.	Strength.	476 479 480	1435
rt'y.	Deaths.	6 14 12	32
2d Art'y.	Strength.	456 485 468	1409
rt'y.	Desths.	6 11 12	29
1st Art'y.	Strength.	486 480 473	1439
,	YEARS.	1823 1824 1825	Total,

TABLE showing the annual ratio of mortality in each Regiment, according to the preeeding abstract.

Regiments.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1st Artillery,	1439	29	20
2d do	1409	32	23
3d do	1435	69	48
4th do	1350	78	58
1st Infantry,	1487	141	95
2d do	1519	26	17
3d do	1280	28	22
4th do	1171	42	36
5th do	1334	26	19
6th do	1304	42	32
7th do	1392	54	39
Total	15120	567	_
Average -	_	_	37.5

TABLE showing the relative annual ratio of mortality between the North and the South, taking the latitude of Washington as the line of division.

		<b>North.</b>			South.		
Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.	
1823	2609	58	22	2158	141	65	
1824	2687	71	26	2464	121	49	
1825	2797	61	22	2537	115	45	
Total -	8093	190	_	7159	377	-	
Average	2698	60	23	2386	126	53	

From this calculation it appears, that the annual ratio of mortality for three years, in our southern latitudes, is  $5\frac{3}{10}$ , and in our northern but  $2\frac{3}{10}$  per cent. On reference to the table showing the mortality of each regiment, it will be seen, that the lowest is  $1\frac{7}{10}$ , and the highest  $9\frac{5}{10}$  per cent., whilst the mean of the whole is  $3\frac{7}{10}$ .\* The lowest ratio is that of

<sup>\*</sup> This ratio is lower than that of the ten years terminating with 1838, being 4 and four-tenths per cent. The mortality of the four years ending with 1822 is, however, considerably higher.

the 2d Infantry, which served at Sackett's Harbor, Fort Niagara, and Fort Brady, or the Sault St. Marie; and the highest is that of the 1st Infantry, stationed at Baton Rouge, New Orleans, Fort St. Philip, Camp Clark, and Belle Fontaine. The mortality of that portion of the 1st Infantry stationed at Baton Rouge, it has been already seen, presented, on an average of six years, a mean of nearly 21 per centum. 2d Infantry, on the scale of increasing mortality, come successively the 5th Infantry, (1-9 per cent.) which served at Forts Armstrong, Snelling, Crawford, and Edwards; the 1st Artillery, (2 per cent.) stationed at Forts Sullivan, Preble, Wolcott, Constitution, Independence, Trumbull, Diamond, Columbus, and La Fayette; the 3d Infantry, (2 per cent.) at Detroit and Saginaw, and Forts Howard, Dearborn, and Mackinac; the 2d Artillery (2 3 per cent.) at Detroit, Plattsburg, Watervliet, West Point, and Pittsburgh, and Forts Mackinac, Niagara, Mifflin, McHenry, La Fayette, Columbus, and Delaware: the 6th Infantry, (3-2 per cent.) at Fort Atkinson, which exhibits much the highest mortality in the northern division; the 4th Infantry,  $(3\frac{6}{10} per cent.)$  at New Orleans, Dauphin Island, Galver Spring, and the Barrancas, and cantonments Clinch, Brooke, and Hope; the 7th Infantry, (3 per cent.) at Fort Smith and on Red river, and cantonments Jesup, Gibson, Taylor, and Towson; the 3d Artillery, (4,8 per cent.) at Forts Severn, Washington, Nelson, Norfolk, Johnson, and Moultrie, and Bellona and Augusta Arsenals; and the 4th Artillery,  $(5\frac{3}{10}$  per cent.) stationed at St. Augustine, the Barrancas, Tybee Barracks, Savannah, Petite Coquille, Augusta Arsenal, and Forts Moultrie and St. Philip.

As M. Carnot, who was deeply skilled in the art of war, was wont, in making a comparative list of eminent French Generals, to place opposite an illustrious name the remark—" he is well acquainted with the map;" so in the case before us, it is only he who has studied well the topography of our country that can fully appreciate the foregoing observations. Having once attained a correct and detailed knowledge of the relative influence of various chains of localities, he will invariably find that, in proportion as he prosecutes his investigations, will his principles be con-

firmed by a succession of similar results.

The following table, embracing a period of four years, which terminate respectively on the 30th September, is also compiled from the records in the Adjutant General's Office. Having taken the latitude of Washington as the line of division, it will serve to elucidate still further

the relative mortality of the north and the south:

TABLE showing the relative mortality between the North and the South, embracing a period of four years, which terminate respectively on the 30th of September, the latitude of Washington being taken as the line of division.

	1825	Deaths.	5	1	0	0	15	9	ı	1	က	0	ಣ		ı	î	ľ	1	12	es	ı	63	9	4	10
	18.	Strength.	51	1	61	2.6	587	35	ı	ı	109	22	54		1	1	ļ	ı	199	186	ı	51	49	105	237
-	1824	Deaths.	C.S	C3	es.	7	5	4	4	1	2	4	cs.		1	_	1	es.	2	દર			œ		
	18	Strength.	09	20	64	87	585	56	46		107				ı	43			119	207	1	45	88		
	1823	Deaths.	0		ಣ			1	4	1	က	9	നാ		1	_	ı	122	18	ı	1	1	દર	1	65
	18	Strength.	56	49	69	118	52	1			110				ı	47	ı	156	323	1	1	57	36		141
	1822	Deaths.	5		9	_	'	દર			23				13		51	1	1	1	4	0	4		94
	18	Strength.	52	93	45	65	ı	37	1	40	92	37	35		203	98	430	1	1	1	41	35	46	1	27.5
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		ions.	,		•	!	٠	٠	1	٠	٠	,	٠	route		•	٠	'	ų	ke =	1	٠	•	•	
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		nos	Fort Washington	Norfolk Harbor	Fort Johnston -	rlest	Fortress Monroe	Savannah	Tybee Barracks	Fernandina	St. Augustine .	Arsenal Augusta		7th Infantry en	Red river	St. Marks	Pensacola	Barraneas	Cantonment		Mobile	Petite Coquille	Fort St. Philip	New Orleans	Baton Rouge
			For	No	For	CPE	Foi	Sav	Ty	Fer	ž;	Ars		7th		St.	Per	Ba	Ca		Mo	Pet	Fo	Ne	Bat
	1825	Deaths.	-	-	0		. CS				¢3	Į	ı	1		0					4	1	1	4	
	18	Strength.	50	44	51	123	44	56	20	48	50	1	1	1	52	51	51	55	202	53	77	1	1	50	200
	24	Deaths.	-	0	0	_		83		_	П	١	ı	1		C5	ı			භ				cs.	68
	1824	Strength.	54	47	50	125	52	99	61	57	63	ı	1	ı	58	40	52	59	169	51	92	53	1	55	265
	83	Deaths.	c	, –	0	_	0	63	0	_	_	0	64	0	C\$	_	1	¢\$	9	_	-	೧೦	000	_	ı
	1823	Strength.	5.9	9	50	112	90	52	139	42	59	53	09	55	43	51	-1	56	190	40	46	94	95	80	237
		Deaths.	C.	0 00	0	C3	0	0	_	ı	c>	23	_	0	_	63	1	cz	9	-	_	1	_	0	, –
	1822	Strength.	49	7 2	43	100	45	43	91	1	49	42	99	48	48	46	ı	33	359	40	48	,	82	54	100
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		North	Sull:	Proble	Cons	Inde	Wol	Trun	Colu	La Favette	West Point	Watervliet Arsenal	Plattsburg	Fort Mifflin	Severn	McE	Dela	Allegany Arsenal	Madison Barracks	Fort Niagara	Shelly	Saoinaw	Dearborn -	Mac	Brady
		M	Fort Sullivan								West	Wate	Platt	Fort				Alleg	Madi	Fort					
			1																						

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218	199	1	1	326	46	ı	ı	i	I	2112
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353	88	335	98	45	423					55 2774 48 2728
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223	95	251	47	43	379					2739
6	ಬ	4	-	0	9					52
327	92	310	51	96	451					2743
	•	1	•	1	•					1
٠,				•						
1	•	•	50							
Howard	Crawford	Snelling -	Armstron	Edwards	Atkinson					Total

\* As this command and the following ones are merely in summer encampments, the strength of each is included in its permanent post.

TABLE showing the relative annual ratio of mortality between our northern and southern latitudes, as exhibited by posts.

		NORTH.		SOUTH.							
Years.	Strength.	Deaths.	Ratio of deaths per 1000 mean strength.	Strength.	Deaths.	Ratio of deaths per 1000 mean strength.					
1822	2,729	52	19	1,999	275	138					
1823	2,759	55	20	2,172	138	64					
1824	2,774	48	17	2,738	109	40					
1825	2,728	55	20	2,339	92	39					
Total	10,990	210	-	9,248	614	-					
Mean	2,748	52.5	19	2,312	153,5	66					

It thus appears that the aggregate of deaths by posts is less than that obtained by regiments—a result to be ascribed to the operation of various causes. As the mortality in 1822 is higher than usual, being nearly 7 per cent., the annual mean of these four years exceeds that of the three years based on the result of regiments, the former being  $4\frac{1}{10}$  and the latter  $3\frac{\pi}{10}$  per cent. A striking fact is, that the north exhibits little variation in the annual ratio of mortality, whilst the south varies from  $3\frac{\pi}{10}$  to  $13\frac{\pi}{10}$  per cent. In 1822, this relative mortality in the ratio of deaths per 1,000 of the mean strength, stands as 19 to 138, and in 1825 as 20 to 39, whilst the relative mean of the four years is as 19 to 66. In this calculation of the comparative salubrity of the north and the south, let it be borne in mind that the troops operating in our southern regions consist mostly of recruits enlisted in the north, with constitutions generally predisposed by intemperance to those diseases which are peculiar to the unacclimated.

This year presents but few results demanding comment. In 1826. the *first quarter*, 38 deaths, and in the *second*, 26, are reported.

In the third quarter, the aggregate of deaths is 48. At Fort Washington, as well as the surrounding country, bilious remittent fevers prevailed to a considerable extent. There were two deaths among 69 cases in a command of 58 men. At Fortress Monroe, morbid action also assumed a character of unusual severity. In a force of 11 companies, upwards of 500 cases of fever, diarrhea, and dysentery, occurred; and the deaths were 11—five from remittent fever, three from diarrhea, and three from the direct effects of intemperance.

The garrison of Augusta Arsenal, owing to the insalubrity of the position, encamped again, during the summer months, on the "Sand Hills." Assistant Surgeon Martin writes thus: "Perhaps in no year since the establishment of the arsenal in this vicinity, has any quarterly report, for the same season, exhibited so little disease, and left us in the

enjoyment of an equal degree of health. Contrasted with the lamentable state of the garrison during the same period last year, we have just cause to be thankful to a beneficent Providence. Our exemption may, in a great measure, be ascribed to the unusual general healthfulness of the season, the early removal of the troops to the sand hills, and the adoption and enforcement of precautionary means. There occurred but three cases of fever, and these were mild, and yielded to the usual course of treatment; three or four of the other cases were tedious, but did well eventually; and there remain on the sick list but two cases which require attention. The average strength of the command has been 39."

At Fort St. Philip, one of the most insalubrious posts, every man is reported to have been in the hospital during the quarter, and some even twice or thrice. The diseases were chiefly remittent and intermittent fever and dysentery; but three cases, however, terminated fatally. At New Orleans, the diseases peculiar to the season were few and mild.

At Council Bluffs, there were 561 cases of intermittent fever, embracing nearly all the command. The correctness of the treatment adopted in this disease, which generally prevailed extensively at this post, is evinced by the fact that but one fatal case occurred, whilst out of 16 cases among Indians, which either received no attention or the directions of the Surgeon were not observed, eight terminated fatally.

Assistant Surgeon Pitcher calls attention to the custom, which then prevailed at many posts, of throwing frequently large quantities of water upon the floors of the soldiers' barracks, instead of washing and scrubbing them. As continual moisture in the subjacent ground, and decomposition in the timber ensued, it was supposed to exercise some agency in the production of fevers, diarrhæa, and dysentery. Although uncertain what influence it may have in the causation of disease, it is a

custom deserving condemnation.

At Fort Delaware, there are reported 18 cases of enteritic inflammation. Assistant Surgeon Samuel B. Smith makes the following report: "It is impossible to convey an adequate idea of the intensity of suffering endured by the sick soldier from enteritis. The severest form of remitting bilious fever, (and some of them approached a malignant nature,) was mildness compared with the enteritic inflammation, caused by drinking the water which was conducted into cisterns from an extensive and badly painted roof. In most cases, the disease was manifested by violent pyrexia, excrutiating pain in the intestines, accompanied with an evident contraction in some portion of its calibre, and an obstinate costiveness, to overcome which baffled, for many successive days, every effort. In two instances, after a lapse of many days, balls of indurated feeces of the size and form, and almost the hardness, of a nutmeg, came away, covered with inspissated mucus bearing a close resemblance to a Several patients laboring under this severe disorder were, when the exacerbations came on, (the disease having a remitting form,) mentally deranged by the intensity of pain.

"The practice was to bleed freely at every return of the paroxysm of pain. The abstraction of blood, which could in no case be dispensed

with, it was necessary not unfrequently to repeat several times in the day. Until pain and inflammation had been subdued by blood letting, no medicine was of any avail as a cathartic. Calomel, castor oil, senna, salts, &c., were then freely administered; but the calomel did not afford that relief which might have been anticipated. Although used with great freedom, but two cases of ptyalism occurred. Enemás of tartar emetic, and castor oil and salts combined with laudanum, were incessantly employed, as were also hot baths. Wherever blisters could be conveniently placed, they were applied, and opium was freely given occasionally. Relapses several times supervened in consequence of imprudence on the part of the soldier. There remain some doubtful cases, and should any result fatally, careful dissections will be made and reported.

"The bilious remittents and intermittents, some of which were very obstinate, were treated in the usual manner by bleeding, emetics, cathar-

tics, calomel and opium, quinine, bark, blisters, and wine." In the *fourth quarter*, the aggregate of deaths was 51.

The first quarter gives an aggregate of 40 deaths. At Fort Delaware, 14 additional cases of colica saturnina came under "This report, in conjunction with the two last submitted," says Assistant Surgeon Smith, "must enforce conviction on the mind of the most incredulous, that the disease proceeds from local irritation. This poison is lead, suspended in the common drinking water of the garrison. It is collected in cisterns from an immense roof, which has been painted four or five times within the last 18 or 20 months. Let the explanation be what it may, the fact is undeniable, that a great number of the most deplorable cases of disease that I have ever witnessed, resulted from the use of this tank water. As the disease immediately subsided as soon as good water was procured from the Schuylkill, the relation of cause and effect is obvious. The men suffered agonizing tonnent, and the most stout hearted soldiers could not refrain from constant and loud lamentations. In some instances, no alvine evacuation could be procured for 14 days; in several, the inference was almost certain that the bowels were contracted in diameter; and in two cases, small portions of intestine came away. I was compelled to put the patients in hot water every six hours, and when in the bath to bleed or cup, or do both. In most cases, I must have drawn from 1 to 200 ounces of blood; and for many days, no rest could be procured, except when the blood was flowing in the bath. injections of tarter emetic and laudanum, castor oil and laudanum, or an infusion of senna and opium, every three or four hours. Calomel and neutral salts, and calomel as a constitutional remedy, were in hourly There was no death; but it were better for several if they Three remain with partial palsy, one of whom must be pen-One man, who had two severe attacks of enteritic inflammation, insisted, although in a feeble state, upon returning to duty. He was relieved from post in February with a chill in the night, which he supposed to be an attack of intermittent fever. In the morning, however, it proved to be typho-mania. Great and unceasing exertions for nearly

thirty days were made to save him, but in vain. He died of absolute debility. The garrison is now in tolerably good health."

During the second quarter, the aggregate mortality is but 33. In his report to the Hon. James Barbour, the Surgeon General speaks thus:

"During this quarter, as in the corresponding ones of several previous years, there has been but little sickness, as the diseases peculiar to the winter have, in a great measure, subsided, and those of the summer have not yet commenced. Conjoined with this cause, the quality and quantity of the soldiers' clothing, the attention paid to the construction, arrangement, and cleanliness of his quarters, as well as to his diet and the several items of internal police, have caused a great decrease in those "camp diseases," which were formerly the almost invariable attendants on every military post. If to this be added the improvements introduced into the military hospitals, the abundance and quality of the medical supplies, the regularity with which they are furnished, and the faithful and appropriate manner in which they are applied by the medical officers, the great change in the tenor and complexion of the quarterly reports of sick, is as satisfactorily accounted for as it is creditable to the department. Many of the diseases peculiar to the soldier having been thus prevented or greatly mitigated, a large portion of the fatal cases from acute complaints is the effect of position and climate, which operate equally upon all; and, as in the treatment of diseases of this class, as the bilious remittents of the south and the various inflammatory affections of the north, the army surgeon is, for the most part, as successful, and often more so than the private physician in the vicinity, the decrease of death and disease finds an ample and satisfactory solution."

At Fort Delaware, six new cases of *Colica Pictonum* are reported, one of which proved fatal. In this case, which was the third attack of the disease, dissection disclosed "a mortification of five fingers' breadth all around the arch of the colon; and six lines below it, there was a stricture in the intestine, caused evidently by the inflammatory action of the last attack. The omentum was entirely wanting."

In the third quarter the mortality was unusually low, the aggregate of deaths reported being but 19. Of these, six occurred at Camp Leavenworth—a point at which intermittent and remittent fever was very rife. The total number of cases under treatment was considerably less than in the corresponding quarter of the two previous years, and the ratio of deaths to the number treated was not more than half as high. The summer encampment of the garrison of Fort Washington was attended with very beneficial effects. There was little sickness and no mortality; whereas, in former years, a large portion of the command suffered from intermittent and remittent fever. At Pensacola, yellow fever prevailed to a considerable extent. Surgeon Lawson, and two other commissioned officers and a sergeant, became affected from residing in or visiting the town. All recovered, and no new cases appeared at the cantonment. The following is the report of the medical officer:

## "CANTONMENT CLINCH, October 15, 1827.

"SIR: I have the honor to transmit my semi-annual returns of medicines, &c., also a report of the sick and a diary of the weather for the

quarter ending the 30th September.

"The yellow fever has prevailed this summer to a considerable extent at Pensacola. Among those attacked, were Paymaster Wright and his whole family, and Assistant Quartermaster Clarke, all of whom resided in town, and myself and a sergeant stationed at this place. As soon as those in town were in a condition to justify their removal, I brought them out to the cantonment, and they all recovered. While under the necessity of visiting Pensacola, I gave, at the same time, my attention to two or three friends, and saw in consultation several other persons; but after the removal of all belonging to the military establishment, I did not again expose myself to the infected atmosphere. Despite this precaution, however, about eight days afterwards, when no longer apprehending danger, I was suddenly struck down. The disease, although of short duration, manifested in its accession the utmost intensity. I was ill three days only, and by the seventh I was fit for duty. The sergeant, who contracted the disease by passing one night

in town, suffered severely for a considerable time.

"Several nights of cold damp weather having immediately preceded the appearance of the disease, the earlier cases manifested an inflammatory character. In a few days, however, it assumed an opposite modification, becoming in some instances very malignant. In those cases characterized by high arterial action, venesection was generally adopted, but not always with success. In some instances, it was evidently highly beneficial; but in others it seemed to have no salutary influence, as the cases tended rapidly to a fatal result. The warm bath, which was generally employed, proved, in the cases which fell under my observation, of marked advantage; indeed, we had recourse to it repeatedly as the only means of relieving, even in a slight degree, the excessive pain under which the patient labored during the first two or three days of his illness. In addition to the warm bath and bleeding, calomel in scruple doses was given on the first and second day, assisted in its operation by castor oil and enemata; after which, calomel in doses of four or five grains was administered every three or four hours, until the fever was reduced, or the general system brought under mercurial influence.

"After the disease assumed the typhoid modification, the remediate means principally relied on by the American physicians were calomel in full doses, accompanied with repeated enemata and cold ablution or effusion, for the first two days; and afterwards, calomel in small doses, with the occasional exhibition of some neutral salt, continuing, at the same time, the application of the cold water and the administration of the enemata. The Spanish physicians, on the contrary, proscribed mercury altogether, and placed their trust wholly in the continued use of salts, enemata, ptisans, and the warm bath. The relative merit of these different modes of treatment could not well be determined; for,

the latter practitioners were seldom consulted in any cases except those occurring among the natives or other Spaniards, who mostly had the disease in its mildest form. Both parties, however, seemed to be aware of the necessity of keeping up a constant action upon the intestines; and I am induced to believe that almost every case in which a brisk action upon the intestinal canal was maintained, (which was not always practicable,) terminated favorably. In my own case, the remedies employed were two full doses of calomel, repeated enemata, and the warm bath. The calomel not only operated effectually on the bowels, but manifested its influence on the gums. On the second evening, my fever intermitted, and before the next paroxysm I was salivated, whereupon the disease yielded.

"Some of the victims of this fever died under the violence of the first paroxysm, before the occurrence of any remission or intermission; others sank immediately on the subsidence of the fever; and others, after surviving three or more paroxysms, expired. In those instances in which the vital energies were not at once prostrated beyond the power of reaction, and ptyalism could be induced before the second paroxysm, the

issue was generally favorable.

"Whether the yellow fever of this year was less severe than that which prevailed in Pensacola in 1822, and at other points in different years, or whether the treatment was better adapted to the disease, I know not; but I have every reason to believe that it was not so fatal this year as on many former occasions, both at this and other places.

"With sentiments of respect, &c.,

"TH. LAWSON, Surgeon U. S. A.

"To the SURGEON GENERAL."

In the fourth quarter there were 57 deaths. Although the number of cases reported is less than the average of the corresponding quarter of the two previous years, yet the aggregate of deaths is greater by 10. As there occurred, however, 12 deaths at New Orleans, 11 at cantonment Leavenworth, and 10 at Fortress Monroe, there remain but 24 for all the other posts.

"The causes of the 12 deaths at New Orleans," says the late Surgeon General, "as well as the nature and treatment of the diseases for the quarter, are altogether unknown, the post having been attended by a private physician during the absence of the surgeon. The number of cases, on the arrival of Surgeon Harney, was 158, so that the propor-

tion of deaths was 1 in 13."

The detachment of the 3d Infantry, that ascended the Missouri the previous autumn to occupy cantonment Leavenworth, suffered much from the diseases incident to troops employed in establishing new posts on the frontier. In a command of four companies, there occurred 163 cases of intermittent and remittent fever, of which 11 proved fatal in the stage of convalescence, caused by the supervention of diarrhea and dysentery in subjects whose constitutions had been broken down by previous diseases.

In the remarks of Assistant Surgeon Turner, stationed at Fort Wolcott, Newport, R. I., the following important fact is stated: "In the course of thirty years' professional acquaintance with this place, I have never known a case of intermittent fever which was not decidedly referable to the malaria of some more southern climate as an original cause."

In regard to the diseases of Fortress Monroe, Surgeon Everett remarks, "that when the quarters of the troops shall be located within the walls of the fortress, the more formidable diseases, under which they now labor, will materially diminish, if not altogether disappear. present position on the immediate borders of the canal, the waters and banks of which are the common receptacle of the offals of the barracks and kitchens, is most unfortunate. During the last summer, there did not occur a case of fever which might not be ascribed to the agency of these causes.

"The use of sheet lead for covering the boilers and furnaces in the kitchens of two companies, the covers being painted over before each weekly inspection, has produced the most disastrous results. It escaped my observation for two or three weeks, until its effects suggested an investigation. Cholic, paralysis, and ulcers in their most frightful and obstinate forms, appeared in more than twenty cases in these two companies. 'The health of all was much impaired, one death ensued, and several, who still linger in a most wretched state, will, I think, eventually recover."

In the first quarter, the aggregate mortality was 35.

In the second quarter, the aggregate of deaths is 30. change of posts among the four regiments of Artillery having taken place the preceding year, the consequences resulting from the change of climate were regarded with interest; the result in relation both to the cause and extent of mortality, demonstrate that no unfavourable effects ensued.

The following extract is from the report of Assistant Surgeon Randolph, stationed at cantonment Leavenworth, Missouri: "Intermittent fever has exhibited a very obstinate and protracted character. ing that this obstinacy was attributable, in many cases, to visceral congestion, the remedies appropriate in such cases were resorted to without regard to the original malady; and in many instances with the happiest result, as the disease yielded as soon as the affected organ was restored to its healthy action. In some cases, in which the intermittent fever defied the usual remedial means, venesection was employed on the accession of the cold stage. This practice was invariably followed by a complete arrest of the chill, without being succeeded by the hot and sweating stages. In most cases, one copious bleeding rendered the most obstinate intermittent completely subject to the remedies which it had previously defied. A second resort to the lancet was in a few cases requisite. The cases treated in the manner just detailed, did not evince any symptom of visceral congestion, but a general and almost complete abstraction of the circulating mass from the superficies of the body. Without regard to the apparent debility, the lancet was used until reaction on the surface was indicated by a general glow. The most nervous and delicate females were subjected to this treatment, and in every instance with the most favourable result. My confidence in the efficacy of the sulphate of quinine is by no means impaired; but in the extraordinary cases just mentioned, it was of no avail; nor can it be, when

congestion, either locally or generally, exists."

In the third quarter, the aggregate mortality was 50, of which 23 occurred at one post, Oglethorpe Barracks. The number of men present in August was 95; consequently nearly one fourth of the command fell victims. The sick, at this time, were under the care of a civil practitioner, who, it is believed, was well qualified in his profession. The chief diseases were bilious intermittent and remittent fever, from which his patients speedily recovered; but owing to excessive intemperance among the convalescents, indulged at the expense of the hospital stores, relapses took place, occasioning nearly the entire mortality.

At cantonment Leavenworth, intermittent and remittent fever prevailed to a considerable extent; but, during the quarter, there was but one death in a command of 280 men. In consequence of the mortality among the troops on its first establishment, this post acquired the character of being a very unhealthy position. As in all newly settled countries in a state of partial cultivation, much disease and suffering were endured by this command. In reference to this subject, the Surgeon General, in his quarterly report, remarks: "In addition to the ordinary irregularities incident to a march, the men are usually exposed, by day and by night, to the miasmata which infest the margins of our large water-courses. Having reached their destination with constitutions predisposed to disease, if not actually infected with it, they are required, during the very season of endemics, to labor constantly to provide shelter for the ensuing winter. With quarters perhaps unfinished, or at any rate damp and uncomfortable, they are totally deprived of the many little comforts to be obtained at an established post. Under these circumstances, the prevalence of bilious fevers, diarrhea, and dysentery, is very satisfactorily accounted for. Thus, the position at Council Bluffs was probably as healthy a one as could have been selected, and although sickness prevailed there to an unprecedented degree on its first establishment, there were but three deaths the following year, one of which was accidental and another from convulsions.

"On this subject, I beg leave to subjoin the following extract from a communication of Dr. Gale who accompanied the Rifle regiment to Council Bluffs in 1819, and who has been almost constantly on duty in that country for the last ten years. He is well known to the Army as one of the most efficient and experienced officers of the department,

and is now stationed at cantonment Leavenworth."

"During the year 1828," says Surgeon Gale, "there were but 9 deaths at this post, in eight companies, one from remittent and one from intermittent fever, one from epilepsy, one from apoplexy, one from rupture of the internal jugular vein, and four from consumption.

"I am told that, on the establishment of this post in 1827, diseases were unusually fatal. This will ever be the case among those who

first break ground in an uncultivated country, more especially among those that have not been acclimated.

"This post was selected with a special view to health by that experienced and intelligent officer Col. Leavenworth. It is situated on the right bank of the Missouri, on a dry elevated soil, with a substratum of lime-stone; it is surrounded with a forest of large trees, in the vicinity

of an extensive and undulating prairie.

"During the past year, an hospital and permanent quarters for the troops have been nearly completed. The forest has been thinned, leaving trees for the purpose only of shade, and the undergrowth of hazel, greenbriar, and grape-vine, has been removed. Last fall, the luxuriant growth of the prairie was burned as early as practicable, to prevent vegetable decomposition; and the post has assumed the appearance of a comfortable and well regulated farm.

"The weather during the winter has been mild and agreeable. The apprehensions entertained immediately after the establishment of the post have subsided. During the last two months, there has been no

one confined to bed by sickness.

"Learning that Government contemplate removing the troops on account of unhealthiness of locality, predicating its determination on unofficial reports, I have conceived it my duty to submit these remarks. I will venture the opinion, matured by eleven years' constant duty at the several military posts embraced between Jefferson barracks and Twothousand-mile creek, that no position more salubrious than this can be selected between this point and the confluence of the Missouri and Mis-

sissippi."

Reference has already several times been made to the disadvantages which attend the career of the Army surgeon, compared with that of the civil practitioner. The physician in private life can form but little conception of the malignant nature of the morbific agents and the aggravated character of the diseases, which it falls to the lot of his military brother to encounter. As illustrative of this point, the following extract from the quarterly report of Surgeon Beaumont, at Fort Crawford, Prairie des Chiens, is presented: "The garrison is surrounded by marshes and stagnant pools; the whole prairie has been twice inundated since April; the troops driven from the barracks by the rise of the water, (from one to four feet above the ground floor of their quarters,) returned to them while the earth and timbers were yet saturated with water; whilst the weather, which was excessively hot in July and August, was favorable to the evolution of marsh miasmata. The cases of intermittent fever have generally not been obstinate, nor the symptoms severe, owing, most probably, to the unusual wetness of the season. The most effectual treatment I have adopted, is to anticipate the cold stage by administering an emetic on the earliest sensations indicating its approach. The emetic consists of sulphas zinci grs. viii., and pulvis ipecac. grs. vi., to be repeated in fifteen minutes. This prescription is followed up in the course of ten or twelve hours with a scruple of calomel; and in the event of pain in the right hypocondrium, which generally attends, a large blister is applied to that region. The sulphasquinine, (2 grs. every three hours,) is now administered. When much congestion exists, the use of the lancet, immediately before giving the emetic, even on the approach of the cold stage, I have found most effectual in hastening general reaction. I have met with no case that has not yielded to the foregoing treatment in the course of six, eight, or ten days. In some of the more obstinate cases, it becomes necessary to repeat the vitriolated emetic once or twice, and to continue the use of the quinine for fifteen or twenty days, to subdue the disease effectually."

In this quarter, there are 57 cases of dengue reported, 8 at Fort Pike, 14 at cantonment Clinch, and 35 at Fort Moultrie. Dengue, dandy, rheumatismus febrilis, &c., is an eruptive fever or exanthematous affection, which made its first appearance, in the latter part of 1827, in the Caribbean Islands. Extending westward, it soon spread extensively over the West Indies, and appeared, by the next year, on the neighboring coast of the United States. In the spring and summer of this year, our southern ports, New Orleans, Pensacola, Savannah, Charleston, &c., suffered a severe visitation; and, although some cases are reported to have occurred in Philadelphia and New York, the evidence is unsatis-We have also accounts of its visitation at Vera Cruz and Carthagena; in 1824-'25, there prevailed in Calcutta and its environs an epidemic with features claiming a close identity. Its progress was remarkable for a universality of attack. "In a population of 12,000 souls who occupy the town of St. Thomas," says Stedman, "scarcely a single individual escaped." As it was sudden in its appearance, and rapid in its course, so was its duration as an epidemic brief. Towards the close of the year 1828, it suffered a gradual extinction; and, like the black death, the sweating sickness, and cholera asphyxia, it soon disappeared, leaving behind naught save the terror of its name. Fortunately, however, its history, unlike these epidemics, was distinguished less by its fatality than mere suffering. In the annals of medicine there is not, perhaps, recorded a disease so severe in its accession and duration, and so seldom leading to a fatal issue. In a paper on this affection, as it prevailed in the island of St. Christopher, by John Squaer, Esq., Assistant Surgeon of the 93d regiment, British Army, the writer observes:—"This disease, in all the instances I have witnessed, was considered of a simple, and though of a violent nature, yet there was nothing dangerous in it. It has been said to have terminated fatally in one or two instances in this island; in some of the others, it has caused death in several instances." Dr. Dumaresq, in his description of the epidemic at New Orleans, says:-" Out of the many thousands afflicted with it in this city, not more than four or five have died; and in these it appeared to be combined with some organic difficulty, and especially of the liver, which gave it the semblance of yellow fever, and such it was considered by some." According to Dr. Dickson, who gave an account of the epidemic as it appeared at Charleston, S. C., -"Dengue, indeed, can hardly be said to have ever proved fatal of itself."

Surgeon Lawson, in transmitting his quarterly report of sick, at can-

tonment Clinch, writes as follows:

"Dengue has prevailed to a very great extent in this section of our country. In Pensacola, scarcely a person of any age, sex, or condition, has escaped an attack. With us in the cantonment, however, its influence has been less generally felt. The disease was modified somewhat in its character, and the intensity of its symptoms, by the peculiar constitution of the subjects attacked. Among the Americans and other persons of vigorous health, the fever usually ran very high, and continued without a remission from twenty to thirty-six hours; after which, it subsided, leaving the patient in a state of extreme debility, and laboring under an acute rheumatic affection of the muscular system generally. Among the Spaniards, who are generally less plethoric, the febrile manifestations were, on the contrary, much less intense; but the disease was of longer duration, and the pains throughout the fibrous tissues were infinitely more severe.

"As a general rule among the Americans, one or two efficient cathartics were administered in the early stage of the disease; after which, the repeated use of the warm bath, and frequent draughts of lemonade, were sufficient to complete the cure. Among the Spaniards, no active medicines at all were taken; ptisans and the warm bath were the only remedies employed. A recurrence of the disease, particularly of the rheumatic affection, was very common among all classes; but the relapses, I believe, were much more frequent among those who resorted to no active remedial means. It was always most safe to administer an efficient dose of medicine immediately on the attack; the disease was rendered more manageable, and its duration shortened. The period of its course varies from forty-eight hours to several weeks. Although a very severe, it is by no means a fatal disease; no case terminating in

death has occurred within my knowledge."

From the various descriptions of this disease, it appears that it was generally ushered in by the usual manifestations of febrile diseases. Its accession was marked by a painful affection of the joints and muscles, attended by fever of the ordinary inflammatory type. fever generally declined and disappeared on the second or third day, and the arthritic pains diminished in severity with the subsidence of the febrile exacerbation. The paroxysm terminated in an abundant perspiration, attended occasionally with a rash or miliary eruption, which, however, was regarded as an incidental symptom. The local pains abated so considerably that the inexperienced were often induced to resume their ordinary avocations. This deceptive interval, however, was but the prelude to the second stage. On the third or fourth day, the fever having generally intermitted, the tongue began to show a yellowish fur, and the stomach manifested considerable oppression, with nausea and sometimes vomiting. These annoying symptoms, on the fifth or sixth day, were relieved by a cutaneous eruption. In the hue and aspect of the skin, it resembled scarlating more than measles, but was less confluent than either of those affections. The eruption consisted of minute papulæ of a florid red, slightly elevated, and distributed in irregularly shaped patches; and it appeared first on the face and trunk, and then spread to the extremities. A second febrile exacerbation, attended with

severe arthritic and muscular pains, supervened on the full development of this exanthem. After two or three days' duration, the eruption gradually disappeared, with some desquamation of the cuticle. In the neck, groin, and axilla, the lymphatic glands, in a good many cases, suffered inflammation and enlargement; and this condition of the glands, as well as the painful affection of the joints, often continued for weeks and months after convalescence. "This was a singular termination of the disease," observes Dr. Dumaresq, of New Orleans, "leaving sufferers from the fever hardly able to move about; and indeed the appearance of persons in the streets must have been truly pitiable to a healthy stranger—the apparently great and often fruitless efforts to make a step; here one would be seen dragging his legs after him, supported on crutches; and there another with limping gait and various contortions of countenance, bespeaking that his tardy progress was made at the expense of his bodily feelings."

As regards the pathology of dengue, it may be fairly classed among the exanthemata. It is an eruptive fever of a distinct and specific character united with an inflammatory affection of the joints. Hence, one writer styles it scarlatina rheumatica; another, exanthesis arthrosia; and a third, designates it an eruptive articular, or rheumatic fever. The vulgar appellation by which it became universally known, it received from the English negroes of St. Thomas. From the stiff affected gait induced in those laboring under it, it was called by them the "dandy fever;" and this term, when the disease invaded Cuba, was there cor-

rupted in Spanish pronunciation, into dunga or dengue.

In relation to the origin and specific character of this exanthematic fever, some diversity of opinion obtains. Whilst one class of writers refers it to an epidemic constitution of the atmosphere, another maintains it to be a malady of a specific and contagious nature. In support of the latter position, it is stated that its career was uninfluenced by season, locality, or atmospheric change, and that its progression was gradual from place to place, following "the great routes of commercial intercourse." Professor Dickson is an advocate for its contagiousness; but all the evidence adduced is far from conclusive. Dr. Osgood, who saw the disease at Cuba, is strangely "led to consider the specific cause of dengue, and that of the yellow fever to be the same;" and Dr. Waring, of Savannah, maintains its close analogy with the "breakbone fever of 1826, and the epidemic fever of 1827," which last, like the breakbone fever of 1780, described by Rush, is a plain bilious remittent fever.

In reference to the prognosis of dengue, it has been already said that it scarcely ever proved fatal, unless complicated with some incidental lesions. The aged and debilitated suffered most severely; and amongst the intemperate, it not unfrequently ushered in *delirium tremens*. The population of some places experienced an almost universal attack. Neither age, sex, nor condition in life, was exempt from its invasion. Its visitations were equally made to the hovels of wretchedness and the airy habitations of comfort and affluence—

- æquo pulsat pede pauperum tabernas Regumque turres.

In regard to the treatment, there does not seem to have been much diversity of opinion. To control the violence of the attack, the lancet was generally employed during the inflammatory stage. Cathartics and diaphoretics were almost universally prescribed. In the earlier stages, it was usual to give antimonials, and subsequently Dover's powder, and other stimulating diaphoretics. Anodynes, in the form of opium and pulvis doveri, were generally resorted to with the most happy effect a remedy loudly demanded by the pain and anguish of the sufferer.

In the fourth quarter, the total of deaths was 46, of which 18 occurred at Oglethorpe barracks-10 from bilious remittent and two from intermittent fever, four from dysentery, and two from intemperance. The strength was 85, and the number of cases 76. The number of deaths at this post for the year was 52, besides 19 women and children. aggregate annual mortality of the army was 161; of these 27 arose from pulmonary consumption, 20 from the direct effects of intemperance, and 17 from wounds and other accidents, leaving but 55 from all

In conclusion, it may be well to mention a fact of practical importance in relation to yellow fever and similar epidemics. In our quarterly reports, it is found that the removal of the troops but a short distance from the locality in which the disease originated, frequently causes its sudden cessation. Remarkable instances of this kind are also furnished in the history of the epidemic fevers at Gibraltar; and the statistics of the British troops likewise show that, in the West Indies and Ionian islands, whilst one station suffers severely from yellow fever, others within a few miles are entirely exempt. In the epidemic cholera at Montreal and Halifax, the removal of the troops but a short distance was followed by the most happy effects. As the morbific agency manifested in the epidemic form, seems to be often limited to particular localities, it were always advisable on the part of the medical officer, on the sudden invasion of any serious disease of this character, to take into immediate consideration the expediency of a removal of the command.

#### PART II.

In entering upon the analysis of the statistical materials afforded in the second period, from 1829 to 1838 inclusive, it may be premised that the numerical method of investigating abnormal action has been successfully adopted. Having had access, so far as the investigation extends, to data, as precise as the nature of the subject will admit, the conclusions warranted by the numerical result may be regarded as a fair exposition of the relative influences of our various systems of climate. In this inquiry, the object aimed at will be the development of the laws of climate, and the application of these laws to the elucidation of disease.

The statistical and topographical details of the Military Posts of the United States, will be investigated in the order of the following general

Divisions:

# 1. THE NORTHERN, 2. THE MIDDLE, and 3. THE SOUTHERN.

# 1. THE NORTHERN DIVISION OF THE UNITED STATES.

This Division will embrace three classes of post, characterized by certain modifications of climate: 1. The region of the great lakes; 2. The coast of New England; and 3. The interior posts remote from large bodies of water.

# 1. THE REGION OF THE GREAT LAKES.

The class of posts now under examination, comprises those situated on the inland seas along our northern boundary. In regard to the climate, a general description will, in a great measure, suffice for each post; nor is it necessary to enter into a detail of tabular statements, inasmuch as the meteorological phenomena peculiar to the region of these ocean-lakes are abundantly illustrated in the "Remarks" to the Meteorological Register. Modified by these inland seas, the character of the climate

bears a close similitude to that of the Atlantic coast. Compared with localities uninfluenced by the agency of large bodies of water, the range of the thermometer and the mean temperature of the seasons show less extremes. To illustrate this point, a comparison between Forts Brady and Snelling, the latter being 1° 46' south and 8° 25' west of the for-The results based on five years' observation, show mer, will suffice. that the mean annual temperature of Fort Brady, is about 4° lower than that of Fort Snelling; but the latter, notwithstanding its being farther south, has a mean winter temperature about  $2\frac{10}{2}$  colder, whilst that of the summer is more than 10° warmer. In tracing a comparison on the same parallel between the Atlantic coast and the region beyond the modifying influence of the great lakes, a more striking contrast in the seasons is scarcely revealed. On the seaboard, the mean winter temperature is about 6° higher, and that of the summer about 9° lower. further evidence of the modified temperature of Fort Brady, it may be stated, that the annual range of the thermometer is about 10° less, and the difference in the mean temperature of winter and summer about 15° less, than at Fort Snelling.

On reducing the ratios of the weather, based on the observation of five years, to numerical expressions, a remarkable contrast is discovered between localities on the lakes and those in opposite conditions. In the former, the prevailing weather is cloudy, and in the latter, fair. This comparison is instituted between Fort Snelling on the one hand, and on the other Forts Brady and Mackinac. At the former, the annual ratio of fair days is 215, and at the latter, 117; the cloudy days are as 73 to 127; the rainy, as 46 to 63; and the snowy, as 29 to 45. As regards the relative annual quantity of rain as given by three years' observation, that of Fort Brady is 31.89, and that of Fort Snelling is 30. 32 inches. Contrasted with the relative number of rainy and cloudy days, the difference in the annual amount of rain is small; but this circumstance may be explained on the same ground as the fact, that in cold or temperate maritime localities, rain descends more frequently, but in

much slighter showers than in warm or inland regions.

On the lakes, too, the seasons do not glide so rapidly into each other. The phenomena of spring are not developed with such suddenness as at Fort Snelling; for, according to a well-known law, a great heat preceded by a cold season excites, in a greater degree, the force of vegeta-

tion, than a summer of uniform high temperature.

# FORT BRADY.

LATITUDE, 46° 39'. LONGITUDE, 84° 43' W.

We come now to a description of special posts. Fort Brady, situated at the Sault St. Marie, Michigan, is on the southern bank of that river. It is distant from Lake Superior 15 miles, from Lake Huron 50, and from the Atlantic ocean about 800 miles. The river at this point is cix- 18 feet below the surface of Lake Superior, and nearly 600 feet above the level of the ocean. The physical aspect of the surrounding country

exhibits considerable variety. The bank of the St. Marie, which is here three-fourths of a mile in width, presents a gradual slope for the distance of 250 feet, gaining in that space an elevation of 14 feet, in the rear of which the surface of the country approximates a level. For 300 yards from the bank of the river, the soil is cleared of timber, and is, although not very productive, in a state of cultivation. Immediately adjoining this cultivated ground, is a marsh half a mile wide, beyond which high lands appear. This marsh extends five or six miles down the river in a south-east direction, and west and south-west for 15 or 20 miles. It is covered with some large forest trees, and a thick growth of underwood. On the opposite side of the river, the country is undulating and mountainous, and covered with a dense forest. The falls in the river at this point, form an obstruction to the ship navigation of the upper lakes.

The prevailing winds are the west, north-west, and south-east. The north-west winds descend from mountain chains, traversing Lake Superior; and the west and south-east winds pass over the marshes already

described.

The barrack and hospital accommodations are as good as we find them at our posts generally. They were built in 1824. The materials being wood, the lower logs, which were placed directly upon the ground, are now (1839) undergoing rapid decomposition. It has been with truth remarked that whilst our troops are better paid, fed, and clothed, they are worse quartered than those of any other nation.\*\*

Having thus brought under view the principal circumstances which may be supposed to exercise an agency in the causation of morbid action, the diseases reported within the 10 years are exhibited in the fol-

lowing abstract:

<sup>\*</sup> These topographical facts have been furnished chiefly by Assistant Surgeon Henry Holt,

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Brady, for a period of ten years.

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Under the class of diseases of the respiratory organs are comprised, 248 catarrh and influenza, 33 pneumonia, 6 pleuritis, and 7 phthisis pulmonalis; under the head of digestive organs, 119 diarrhea and dysentery, 39 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 7 epilepsy, 2 mania a potu, and 5 nyctalopia; and under that of venereal affections, 40 gonorrhea and 48 syphilis.

As the total of deaths, according to the Adjutant General's returns, is 11, and the aggregate mean strength is 984, the annual ratio of mortality is  $1\frac{1}{10}$  per cent. Of the deaths, six are reported in the medical returns, viz: one typhus fever, one phthisis pulmonalis, one cholera morbus, occurring in a patient exhausted by chronic diarrhœa and secondary syphilis, and three from causes not designated, exhibiting a mortality of roper cent. This discrepancy arises from the circumstance that medical officers generally report the deaths on the sick-list only, omitting those that occur suddenly, from accidental causes, or on detachments.

This post may justly be regarded as one of the most salubrious stations in the United States. The annual ratio of febrile cases of malarial origin is low, that of intermitting fever being four per cent., and that of remitting fever only three, per thousand of the mean strength. bid action generally assumes an inflammatory character; and, with the exception of the typhus, which prevailed in the winter of 1837-'8, there has been no disease of a malignant tendency. In regard to this endemic, Assistant Surgeon (now Surgeon) McDougall reported as follows: "Shortly after my arrival at Fort Brady, in October, 1837, scorbutic symptoms were manifested in nearly every case of disease which occurred, such as spongy gums with hæmorrhage, unusual debility, coldness of the surface, and the sensation of sinking in the epigastrium. The whole command being put on a strictly antiscorbutic regimen, these symptoms soon disappeared without any recurrence. At this period, the first case of typhus was reported; but as I soon became a subject of the disease myself, I lost the only opportunity I have had of observing and treating this formidable disease.

"Symptoms.—Lassitude, loss of muscular power, tinitus aurium, disposition to syncope, pains in the head, back, and extremities, difficult respiration, rigors, pulse irregular, small, quick, and sometimes hard, tongue clean and red, and bowels constipated. In most cases, within 60 hours from the attack reaction was fully established; then the tongue became dark and dry with hæmorrhagic fissures, the teeth covered with black tough sordes, the eyes red and watery, and the temperature of the skin increased, giving that peculiar tingling sensation to the fingers characteristic of the malady. If the disease continues, petechial blotches appear, followed by subsultus tendinum, delirium, extreme prostration, and death. A favorable prognosis is indicated by a gradual subsidence of the symptoms detailed—abatement of thirst and heat, moisture of the skin, disappearance of petechiæ, black discharges from the bowels, hæmorrhage from the nose, deafness, and a turbid secretion from the kidneys. The duration of the disease was from one to two months.

"The treatment consisted in ventilation of the wards, strict police, and personal cleanliness, tepid bathing, calomel and opium to correct

the secretions, diffusible stimulants, particularly carb, ammoniæ, rubefacients, blisters, and occasionally cups applied to the epigastrium. Some of the cases were undoubtedly typhus syncopalis; but the general character of the disease was that of typhus gravior and mitior. The first case originated within the pickets, which are near 20 feet in height; the next occurred among the hospital attendants, then among the convalescents from other diseases, until finally all in hospital, excepting the steward, were affected. The only case that proved fatal in hospital was a private under treatment for gonorrhæa. From the garrison, the disease extended to the village, and thence to the Canadian shore.

"The probable causes of the fever were, the long continued prevalence of N. E. winds with rain, which, in this climate, is remarkably depressing to the powers of life—great accumulation of vegetable matter in a putrid state beneath the buildings of the fort, and in its immediate vicinity—confined air from the high stockade, and deficiency of

acetic vegetables."

During the 10 years, there are 15 cases of typhus fever reported, of which eight occurred at the period to which reference has just been made. In the last two quarters of 1835, pneumonia was prevalent, and although severe, no case terminated fatally. In regard to pulmonary lesions no comments are required, inasmuch as this subject has been fully elucidated in a special report. The relative influence of the seasons is manifested in relation to intermittent fever; but this question will be more fully illustrated in the general results of this class of posts. As regards disease in general, there is little diversity presented in the different seasons. The first and fourth quarters exhibit the lowest ratio of sickness, as shown in the following table:

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
10 first quarters = 10 second " - 9 third " - 10 fourth " -	1,011 947 885 1,004	302 340 306 327	299 359 347 326
Annual ratio -	962	1,275	1,325*

It thus appears that among 1,000 troops, there are 1,325 cases of disease reported in the course of the year, and that consequently every man, on an average, has been under treatment once in every nine months.

<sup>\*</sup> As this average does not quadrate with the total of the four quarters, it may be necessary to say that it is the result of the annual ratios, the mean strength being 962, and the total of cases 1,275. This remark will be found of frequent application.

As the forms of tabular arrangement adopted in reference to this post, are equally applicable to all subsequent ones, a few explanatory remarks are required. Under the head of synochal fever are condensed the cases reported as synocha, synochus, common continued, ephemeral, and inflammatory; but the majority of cases are reported under the last name. As the term typhus is subject to vague and arbitrary employment, diseases of a very diverse character are doubtless often registered under this head. The cases of typhus reported at our southern and southwestern stations, it may be presumed, generally owe their origin to the same miasm which produces intermittent and remittent fever. That it is often generated by the ordinary causes of fevers, is an opinion advanced by Armstrong—a doctrine which seems to have found but When these morbific agents act on a system depressed few advocates. and debilitated from any cause, a low or typhoid state of fever will be developed; but the phenomena of these fevers do not accord with those which characterize genuine contagious typhus, as described by Surgeon McDougall. Under the class of diseases of the respiratory organs, are included the following specific diseases: pneumonia, pleuritis, phthisis pulmonalis, hæmoptysis, catarrhus, asthma, dyspnæa, laryngitis, pertussis, etc. Under the class of diseases of the digestive organs, the following: tonsillitis, gastritis, hæmatemesis, enteritis, peritonitis, dyspepsia, colica, cholera, constipatio, diarrhœa, dysenteria, hepatitis, icterus, Under the class of brain and nervous system, the following: meningitis, apoplexia, paralysis, epilepsia, cephalalgia, ictus solis, mania, delirium tremens, nyctalopia, etc. In regard to the other classes, it is deemed unnecessary to state the specific diseases,

# FORT MACKINAC.

#### LATITUDE 45° 51' N. LONGITUDE 85° 05' W.

General Description.—Based upon limestone, with a very superficial covering of soil, the island of Mackinac rises, in its greatest elevation, 220 feet above the water of the lake. As the site of the present fort is elevated 150 feet, it is 728 feet above the level of the ocean. The island is about nine miles in circumference, and rises on its eastern and southern shore in abrupt rocky cliffs to the height of 150 feet. Although a large portion of the immediate shores of the lake in this vicinity is composed of marsh, yet there is much that presents an opposite character. From the site of old Mackinac, at the very extremity of the peninsula, the immediate shores, extending 150 miles along lake Michigan, are generally elevated, sometimes rising abruptly from 300 to 400 feet. As this post is unoccupied at the present time, it is impracticable to furnish the medical topography of the immediate locality of the fort.

In regard to its meteorological phenomena, it will suffice to make reference to the preceding station, or for more ample details, to the special

report on meteorology.

The following abstract exhibits a condensed view of the principal diseases of this post, for the period of ten years:

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Mackinac, for a period of ten years.

		838	32	٠,	63	104	6 2 3	0.7	61 6 44	397
	1838				•	•				
	1837	,	1 1	1 1	'	,	e 10th.	սո <b>ւ</b> թ	Vacate	
3R.	9881	101	1 1		20	27	8 T 2 S	1 1	10	95
SECOND QUARTER.	1835	105	- 23	٠.	7	œ	ا ، ت		9 - 01	40
QU.	1834	108	eo .		15	11	4.50	- 5	∞ <del>4</del> ∞	62
OND	1833	110	4 %		œ	14	٠ , ١٥	. 63	4 . 4	53
SEC	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	104	10		•	10	٠.,		-	29
	1831	106	9 ,		4	œ	, , 00		m . ~	31
	1830	92			2	18	8 - 4		2 - 3	49
	1829	106	9	k 1	4	œ	4		6 <del>-</del> 4	38
		949	1 7	es '	74	83	111	00	83 10 60	397
	888		.1.	1 1				1 1	1 1 1	·
	837 1	100			25	on .	18	1 85	8 8	68
ئم	836	113			25	23	1 . 6	જ જ	9 - 6	87
RTEI	835 1	104	, ,		2	2	1 100		9 • 4	25
QUA]	1834	96			65	9	63	٦.	2 10 00	8
FIRST QUARTER.	1833	115	- ,	٠,	Ç\$	17	es 1 es	လ က	10	9
FII	2881	107				ಣ	, , 63		o . n	18
	1831	107			65	5	4		1.4	27
	0881	104	١.,	- ·	ro	œ	9	1 63	o , ro	33
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	103	4.		2	7	- , -	1 1	6 . 1	88
	•				tory	stive .	and -	1 1		•
	Years	Mean Strength -	Intermittent fever - Remittent " -	Synochal "Typhus "	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and nervous system -  Dropsies -  Rheumatic affections -	Venereal " - Ulcers and abscesses	Wounds and injuries Ebrietas - All other diseases -	Total -

ABSTRACT-Continued.

		872	88 88 88 88 88 88 88 88 88 88 88 88 88	
	1838	·		_
	1832 1833 1834 1835 1836 1837 1838	•		
ER.	1836	105	12   12   13   14   15   15   16   16   17   17   18   18   18   18   18   18	
ART	1835	113	112 12 19 10 10 10 10 10 10 10 10 10 10 10 10 10	_
FOURTH QUARTER.	1834	108	33 1 1 420 20 1 20 14 1 20 1	
URT	1833	102	18   6   3   1   1   1   1   1   1   1   1   1	
FO		114	2 2 40 40 40 40 40 40 40 40 40 40 40 40 40	_
	1829 1830 1831	109	6, 11, 8, 8, 8, 1, 1, 4, 6, 5, 7, 8, 1, 8,	_
	1830	111	8 8 1 19 19 19 19 19 19 19 19 19 19 19 19 1	
	1829	110	33 31-4-1-12	
		800	13 13 11 11 12 13 14 13 14 19 19 19 19 19 19 19 19 19 19 19 19 19	
	1838	•	.,	_
	1837	•		
J. J.	1832 1833 1834 1835 1836 1837 1838	86	34 34 34 34 37 3 3 3 3 3 3 3 3 3 3 3 3 3	
VRTE	1835	112	1 1 2 2 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
THIRD QUARTER.	1834	112	23 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
HRD	1833	107		_
E	1832	59	1	
	1831	104	8	
	1829 1830	100	11	
	1829	108	8 8 31 10 10 10 10 8 8 8 8 8 8 8 8 8 8 8 8 8	_
	Years	Mean Strength -	Intermittent fever Remittent " Synochal " Typhus " Diseases of the respiratory organs Diseases of the brain and nervous system Bropsies	

Than this post, there is not a more healthful one in the United States. According to the Adjutant General's returns, there occurred but five deaths from all causes in the above ten years, being about  $\frac{1}{160}$  per cent. per annum. In the medical returns, there is not reported a single death which can be in any way ascribed to the agency of climate. In 1832, one soldier of the command died of Asiatic cholera, and of four men laboring under this epidemic, left at this post on their march to Chicago, three died. In 1833, there was one death from a casualty, and in 1836.

an officer died from neuralgia.

The general character of morbid action presents so little peculiarity that scarcely any comments from the medical officers have been elicited. Fevers of malarial origin present a low ratio, that of intermitting being 8, and that of remitting fever one annually per 100 of the mean strength. The fact that intermittent fever is more than twice as prevalent in the second than in the third quarter, may be difficult to explain. cases of intermittent fever reported in the first quarter of 1829, are attributed to the circumstance of these men "having been stationed for some years past on the Mississippi." In the third quarter of the same year, "bilious cholic" was very prevalent. Of the diseases reported under the class of respiratory organs, there were of catarrh 203, pleuritis 39, pneumonia 11, and phthisis pulmonalis 3; of those under the class of digestive organs, there were of diarrhea and dysentery 124, cholic and cholera 80, and hepatitis 4; of those under the class of brain and nervous system, there were of epilepsy 6, and mania à potu 4; and of venereal affections, there were 10 gonorrhea and 8 syphilis.

In relation to the relative salubrity of the different seasons, as calculated from the number of cases reported, the annexed table exhibits the

ratios:

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
9 first quarters, 8 second " 8 third " 8 fourth "	948 838 800 872	397 397 419 364	419 474 524 417
Annual ratio	865	1,577	1,823

As there are, among 1,000 troops, 1,823 cases reported annually, it follows that, on an average, every man has been under treatment once in about six and a half months.

#### FORT GRATIOT.

#### LATITUDE 43° N., LONGITUDE 82° 10' W.

Fort Gratiot, situated on the river St. Clair, half a mile from the outlet of Lake Huron, is elevated 598 feet above the level of the ocean,

being twenty feet above the surface of the lake.

Black river, distant about one mile in a S. and W. direction, is the only stream, with the exception of the St. Clair, in the vicinity. "It is bordered," says Assistant Surgeon Motte, "particularly on the west, by frequent broad marshes, which have been subjected to an accumulation of alluvion for a sufficient period to allow a deposition of peat from vegetable decomposition. These marshes exhale, during the summer and autumnal months, a pestilential atmosphere, generative of fever and ague, which is but too prevalent among the inhabitants in the vicinity."

"The surrounding country is greatly undulating. The soil is mostly a sandy loam, and the proportion of marsh is small. Clay is reached at the depth of twelve or fifteen feet. Most of the surrounding country is covered with forest; among the vegetable productions are oak, elm,

maple, ash, hickory, black walnut, pine, &c.

"The lake and river shore in the immediate vicinity of the fort," says Assistant Surgeon Motte, "is a low gravelly ridge, extending nearly a quarter of a mile from the margin of the lake, when the ground suddenly rises to the height of twenty-five feet above the surface of the lake, and retains this elevation, with little variation, to near the shores of Black river. This elevated ground gradually approximates the St. Clair towards the fort, and a few rods below it becomes a perpendicular bluff in immediate contact with the water."

Between the fort and the ridge just described, there is a stagnant pond, which it has been found impracticable to drain, and which, it is supposed, is the copious source of miasmata. The hospital and barracks are represented as defective, being very damp and ill adapted for ventilation.

As regards the general meteorological character of this station, it differs not essentially from the two preceding posts. The modifying influence of the lakes exhibits invariably the impress of its features.

The following table presents a condensed view of diseases for the period of ten years:—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Gratiot, for a period of ten years.

		669	199	7	9		68	128	4	. 66	₹ 63	13	0 0 0 0	99	611
	1838			•	•	•	•	•	•			•sdo	ori	oN	•
	1837	* 44	,	•	•	•	27	7	-	. 1	٠,	. (	დ 4	4 00	57
ER.	1836	68	14		•	•	10	က	-	. ຕ	٠.	-	D 6	000	55
SECOND QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	86	6	•		,	20	2	•	٠ ٥	. –	11	თ თ	~	61
ogu	1834	109	13	က	-	,	11	36	-		₹ ,-		۰ ،	18	82
NOC	1833	104	12	•	•	•	c	œ	٠	• 67	٠.	٦,	o ,	4	38
SEC	1832	83	79	_		•	9	43	•		٠.	• (	<b>2</b> 0 (	က	140
	1831	06	43	•	•	•	-	15	•	•	•		91	ۍ.	87
	1830	76	29	အ	ro.	•	6	33	-	. 4	κ ,	, ,	o ,	13	91
	1829		•	٠	•	- 1	•	•	•	• 1		ort.	rep	οN	
		883	40		o 6/	!	139	80	11	. [	က	20	22	7.	570
	1838	•	•	-/	• •		•	•	•			·sdo	tro	οN	
	1837	112	•	•			30	14	-			4.	2 -	10	84
괊	1836	26	•	•	• 1		14	4	ÇŞ	. 4		4 6	9 9	-	55
FIRST QUARTER.	1835	93	•		٠,		27	~		. 1		. 0	-	9	55
QUA	1834	102	9	,			က	10	_		•	2-	+ 60	က	38
RST	1833	102	1	. ,	٦.		ro.	œ	•	. 6		4:	: •	œ	47
FI	1832	93	23	. (	SS 1		53	4	•	, თ	•	. 4	3 65	က	81
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	66	4	. (	35 1		7	14	-		•	٠ و	र ०१	4	47
	1830	828	4	~ (	n 1	,	23	13	2	. 5			§ ,	23	106
	1829	102	દર	•	. 63	!	က	9	-	. ب	टर	٦ و	2 1-	15	57
	•	•	•	•	• 1	oira-	stive	•	j '		•			•	•
	•	•	ever		, , ; ;	Diseases of the respira-	tory organs - Diseases of the digestive	Organs Organs	em	Oropsies Rhcumatic affections	,	Ulcers and Abscesses	Ebrietas	ses	٠
		ength	ent Fe			of th	gans of the	of the	s syst	ic aff		d Ab	anna -	disca	•
	Years -	Mean strength	Intermittent Fever	Remittent	Synochal Typhus	eases	tory organs iseases of th	organs	nervous system	Oropsies Rheumati	Venereal	ers an	Ebrietas	All other diseases	Total
	Yea	Me	Inte	Rei	ž Z	Dis	t. Dis	o i		2 2	Vcl		Ebi	All	

\* The real strength for the quarter is 89, but it is necessary to deduct one-half, as the sick report embraces but six weeks.

ABSTRACT-Continued.

		857	94 1 3	142	7.4	35 14 17 37 63	615
	1838	40	9	9	,	. r. 14 r	35
	1837	•				No troops.	•
ER.	1836	120		25		314679	91
ART	1835	102	4.8.	10	o	33 · 4 ® ro ro	20
l QU	1834	36		25		4 . 8200	61
JRTE	1833	102	18	9 6		0 1 8 2 1 4	23
FOURTH QUARTER	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	102	e –	4		4-80-8	43
	1831	66	45	47	8	0 - 1 - 0 - 0	150
	1830	109	18	12	1 1	1 10 4 3	20
	1829	91	1 1 1 1	7 2	e: -:	14 1 15 15	63
		889	227 11 3	31	eo .	8 6 4 8 6 7 6 7 6 7 6 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	656
	1838	•				No troops.	·
	1837	•		•		No troops.	•
2	1836	87	12	- 4		9-1.989	49
THIRD QUARTER.	$1829 \ 1830 \ 1831 \ 1832 \ 1833 \ 1834 \ 1835 \ 1836 \ 1837 \ 1838$	104	£ 64 . 7	8 0	3	30 20 8	90
QUA	1834	66	10	9 84	<b>.</b>	10 6 6 10	92
IRD	1833	105	31	es é		1 - 1 - 2 - 1 - 6	77
TE	1832	•		• .		No report.	•
	1831	93	6 8 8 1	es 7	- 1	6 - 2 - 01	142
	1830	103	50	7 25	3 ' '	0000	123
	1829	26	99	8 5	5 ' '	4 1 6 5	83
	•	•		etive	and -		•
	l'ears	Mean strength -	Intermittent fever	tory organs Diseases of the digestive	Diseases of the brain and nervous system - Dropsies -	Rheumatic affections Venereal Ulcers and abscesses Wounds and injuries Ebrietas All other diseases -	Total

Although the aggregate mortality in ten years, according to the Adjutant General's returns, is 35, being nearly 4 per cent. per annum, yet, when the twenty-one deaths which arose from epidemic cholera in the third quarter of 1832 are deducted, the ratio is found much below the mean mortality of the army, being  $1_{-6}^{c_0}$  per cent. Of the 14 deaths, excluding those caused by cholera, 10 are reported in the medical returns, viz: 2 hydrothorax, 1 apoplexy, 1 typhus fever, 1 chronic bronchitis, 1 ebriety, 1 casualty, 1 sudden, and 2 from no assigned causes. It is thus apparent that, although morbific agents of a miasmatic character are unceasingly developed, their effects are never manifested in malignant

and fatal endemics.

The most important sick report—that for the third quarter of 1832 is wanting. It was at this period, (May, 1832,) that Asiatic cholera made its appearance on the N. E. coast of America, and spread with fatal rapidity along the great water-courses on our northern frontier. Whilst one branch of the epidemic passed down the Hudson to New York, another continued west along the great lakes, until, in September, it reached some of our military posts on the upper Mississippi. As the Sac and Fox Indians, headed by Black Hawk, were at this time in open hostility, our troops in marching towards the theatre of war became exposed to the influence of the epidemic. Speaking of this event, Major General Macomb, in his annual report, says:—" Unfortunately, however, the cholera was just at this time making its way into the United States from Canada, and infected our troops while on board the steamboats in their passage up the lakes; and such was the rapidity with which this disease spread among them, that, in a few days, the whole of the force sent by the lakes was rendered incapable of taking the field. Some were landed at Fort Gratiot, others were stopped at Detroit, while the principal part reached Chicago in a most deplorable condition. the six companies of Artillery which left Fort Monroe, five companies arrived at Chicago, a distance of 1,800 miles, in the short space of eighteen days—a rapidity which is believed to be unprecedented in military movements. The loss by cholera in that detachment alone, was equal to one out of every three men."

With the exception of a few cases at Cincinnati, the epidemic did not this year sweep the valley of the Ohio. The influence of the "choleric malaria" was, however, manifested in a peculiar irritability of the bowels, as shown in the general prevalence of diarrhæa. In 1833 and 1834, this epidemic scourge attacked and re-attacked the more populous towns of the west, whilst the sparsely inhabited portions of that region were, in a great measure, exempt from its ravages. Localities favorable to the production of malarious diseases, suffered most severely from its visitations; and, unlike its history in Russia, its progress generally received a

check on the occurrence of severe frost.

In regard to the general character of morbid action, the principal fact requiring comment is the extraordinary prevalence of intermittent fever compared with the two preceding posts. At Forts Brady, Mackinac, and Gratiot, the relative ratio of this type of fever, based on a calculation of the mean strength and total number of cases for 10 years, stands thus—

11

40, 75, 716. At Fort Brady, in the first ten quarters, there occurred no case, whilst at Fort Gratiot there were 40. As the general meteorological phenomena of these three stations exhibit similar features, these effects must necessarily be ascribed to the agency of the local causes detailed in the description of the medical topography of Fort Gratiot. The annual ratio of cases of intermittent fever is 72, and that of remittent is 3, per 100 of the mean strength. The ratio of the former is higher than the average of our southern stations.

Of the diseases of the respiratory organs, 346 were catarrh and influenza, 21 pneumonia, 32 pleuritis, and 5 phthisis pulmonalis. As there is but one death reported from this class, (phthisis,) it is apparent that the general impression in reference to the prevalence and fatality of tho-

racic inflammation in the climate of the lakes, is erroneous.

Under the clsss of digestive organs are comprised 213 cases of diarrhea and dysentery, 58 cholic and cholera, and 8 hepatitis. Under the class of brain and nervous system, 7 epilepsy, 2 apoplexy, and 8 delirium tremens. Of the venereal affections, 6 were gonorrheal and 16 syphilitic.

The relative influence of the seasons is strikingly manifested both in relation to intermittent and remittent fever. As regards disease in general, the diversity presented in the different seasons is exhibited in the subjoined abstract:

TABLE exhibiting the ratio of sickness.

Seasons.			Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
9 first quarters 8 second " 7 third " 9 fourth "		-	882 699 688 857	570 611 656 615	646 874 954 717
Annual ratio	•	•	782	2,452	3,135

As there are 3,135 cases reported in the course of the year among 1,000 troops, it follows that every man, on an average, has been under treatment once in a little less than four months. The extent of sickness compared with Fort Brady is consequently more than twice as great; and in comparison with Fort Mackinac, the ratio is upwards of 50 per cent. higher,

#### FORT DEARBORN.

# LATITUDE 41° 51' N., LONGITUDE 87° 15' W.

This post, which is now abandoned, is situated on the south-west shore of Lake Michigan, in the State of Illinois, 12 miles from the Wisconsin line. It is distant from the lake 250 yards, and is elevated 14 feet above its surface. The river Chicago, which runs upon three sides

of the fort, divides, half a mile above it, into two branches; the one north and the other south, in directions nearly parallel with the lake shore. As the bank of the lake is several feet higher than the ground in the rear, the latter is sometimes covered with water. Indeed, the whole country is so low that, in its early settlement, boats frequently passed, during the spring floods, over the prairies from Chicago to the Illinois river. At this post, the prairie opens upon the lake four miles wide, extending west beyond the reach of the eye. Above and below this point, the shore of the lake is densely covered with large forest trees, such as the different varieties of oak, ash, and hickory. The soil is generally a rich loam; in some places clay, and in others sand, predominating. Limestone is found in large quantities.

The diseases reported within the 10 years are comprised in the fol-

lowing abstract:

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Dearborn, for a period of ten years.

		543	35 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2	178
	1838	•		•
	1837			
ER	1836	98	8	41
ART	1835	88	× · · · , w × □ · · · · □ · · ·	23
SECOND QUARTER	1834	26	1 4	35
OND	1833	93	8	2%
SEC	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	No exact reports	•
	1831	•		•
	1830	83		23
	1829	95	9	39
		899	2	231
	1838			•
	1837		Evacuated	-
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FOURTH QUARTER.	1835	104	٠ ۍ		œ	10		eo .	-8	31
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	1831		• •		•	•		•	No. troops.	
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	iv.	Mean strength	Intermittent fever Remittent fever	Synochal fever Typhus fever	ry organs -	organs	Diseases of the braineryous system -  Dropsies	Rheumatic affections	Venetral anectoous Ulcers and abscesses Wounds and injuries Ebriety All other diseases -	Total
	Years	Mea	Inter	Sync	Dise	ori	Drop	Rhei	Veneres Ulcers a Wound Ebriety All othe	L

This position is one of our most salubrious military stations. According to the Adjutant General's returns, the deaths from all causes amount to eight, being  $1\frac{\pi}{10}$  per cent. per annum. Of these deaths, five are reported in the medical returns, viz: one phthisis pulmonalis, two bilious remittent fever, and two spasmodic cholera. Excluding the last two cases, which occurred in 1834, the annual ratio of mortality is no higher than  $\frac{\pi}{10}$  per cent.

Under the class of diseases of the respiratory organs are comprised 60 catarrh, 3 pneumonia, 20 pleuritis, and 2 phthisis pulmonalis. Under the class of digestive organs, 110 diarrhea and dysentery, 38 cholic and cholera, and 2 hepatitis. Under the class of brain and nervous system, six epilepsy; and of the venereal affections, four were gonorrhea and

four syphilis.

This post was temporarily re-occupied during the campaign against Black Hawk in 1832; but as there was no permanent garrison, the report is not included in the above abstract. It was here that epidemic cholera displayed its most fatal effects among our troops. According to the report of Assistant Surgeon S. G. J. De Camp, 200 cases were admitted into hospital in the course of six or seven days, 58 of which terminated fatally. The strength of the command at this time was about In regard to the mode in which this disease is communicated, Surgeon De Camp inclines to the opinion of its contagiousness. "Several of the men belonging to Major Whistler's command," he says, "took the disease, and two died. Several citizens of the village also died of cholera, although previous to the arrival of the steamboat, which brought the disease to Fort Dearborn, there was not a case of disease of any kind at the fort or in the village. When the troops marched for the Mississippi, they appeared in perfect health, yet on the way it broke out again, and It made its appearance again when the command reached the Mississippi, and became as fatal, I believe, as it had been at Fort That the number of persons in any community susceptible of this disease is not great, appears from the fact that at Fort Dearborn the sick-report was small compared with the number present. As the troops were very much crowded in the fort, and as the disease was making frightful havoc, I advised the commanding officer to have the well men quartered in a barn outside of the pickets, from which time the number of new cases declined. The disease attacked principally those of intemperate habits with broken down constitutions. In fact drunkenness was almost certainly followed by cholera. I am, therefore, firmly of opinion that the disease, as it appeared at Chicago, was contagious under certain circumstances, such as predisposition, filthiness, and bad ventilation."

It may be remarked that, under such circumstances, dysentery has

been known to become contagious.

The treatment by calomel and blood-letting, when it came to be fully adopted, proved so efficacious in the hands of Surgeon De Camp, that he regarded the disease as "robbed of its terrors."

As regards the relative influence of the seasons, the agency of heat and moisture is strikingly manifest in the causation of fevers of the in-

termittent and remittent form. The annual ratio of intermittents is 23, and that of remittents is 4, per 100 of the strength. In reference to disease in general, its diversities in this respect are shown in the subjoined abstract:

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.				
7 first quarters -6 second " -6 third " -6 fourth " -	668 542 579 561 588	231 178 351 179	344 328 606 305				

By the mode of calculation adopted for the preceding posts, every man, on an average, was under treatment once in  $7\frac{1}{2}$  months—a ratio not more than half as high as the station just described.

#### FORT NIAGARA.

# LATITUDE 43° 15' N., LONGITUDE 79° W.

Situated on a point of land projecting westerly at the entrance of Niagara river into Lake Ontario, Fort Niagara is bounded on the north and northwest by the lake, and on the west and southwest by Niagara river. It is 14 miles from the Falls of Niagara, and 32 miles from Lake Erie. The surface of the country in the immediate vicinity is remarkably level, but there are no marshes within six or eight miles. The vegetable productions of the climate flourish here luxuriantly. The river at this point is about half a mile wide. The general character of the climate pertains to the same class as the preceding stations, marked by those meteorological features peculiar to positions on large bodies of water.

All the cases of disease reported during the 10 years are comprised in the following abstract:

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Nagara, for a period of ten years.

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ART		1835	•	,	•	•	•	•		•	•	•			sď	LOC	10	N	•		
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			677	15	12	11	-	02	9	43	જ	-	15	15	24	67		94	363		
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		irs -	Mean strength	Intermittent fever -	Remittent fever	Synochal fever	Typhus fever	Diseases of the respiratory organs -	Diseases of the digestive	organs Diseases of the brain and	nervous system -	Dropsies	Rheumatic affections	Venereal	Ulcers and abseesses	Wounds and injuries	Ebriety	All other diseases	Total		
		Years	Me	Inte	Rer	Svn	بج	Dis	Dis	Dis	. =	Drc	Rhe	Ver	Ulc	Wc	Ebr	All			

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	1837		No troops.	
ER.	1836	•	sdoom oN	
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R.	1836	,	No troops	•
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		12		

This station presents the usual degree of healthfulness exhibited by the statistics of the posts on our northern chain of lakes. The deaths from all causes, according to the Adjutant General's returns, amount to 10, being  $1\frac{s}{10}$  per cent. per annum. Of these deaths, eight are reported in the medical returns, viz: five phthisis pulmonalis, one peripneumonia, one dropsy, and one delirium tremens, the ratio of mortality being  $1\frac{s}{10}$  per cent.

Under the class of diseases of the respiratory organs are comprised 203 catarrh, 19 pneumonia, 12 pleuritis, and 8 phthisis pulmonalis. Under the class of digestive organs, 136 diarrhea and dysentery, 43 cholic and cholera, and 4 hepatitis. Under the class of brain and nervous system, 7 epilepsy and 3 delirium tremens; and of the venereal

affections, 28 were gonorrhæa and 21 syphilis.

The diseases of this post have at no time presented any unusual characters. In regard to fevers of the intermittent and remittent type, a singular feature, at first view, obtains. In the second quarter, the ratio of intermittents is twice as high as in the third, whilst the reverse occurs in respect to remittents. It would thus seem that the cause of these febrile lesions becomes so augmented in intensity during the third quarter, as to develope itself mostly in the remittent modification. In the third quarter of 1838, a detachment of troops from Florida furnished nearly all the cases of diarrhæa and intermittent fever. The annual ratio of intermittents is 24, and that of remittents is 11, per cent. of the strength.

In reference to disease in general, the relative influence of the seasons

is exhibited in the following abstract:

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
7 first quarters - 6 second " 5 third " 6 fourth "	677 561 498 544	363 394 354 328	536 702 711 603
Annual ratio -	570	1,439	2,525

It thus appears that every man, on an average, has been on the sick report once in nearly every five months. The garrison of this post also suffered from epidemic cholera in 1832, when on its march towards the theatre of Indian hostilities. Having reached Detroit on the 30th June, the troops were mustered and inspected, no man being on the sick list. The men were quartered in an old brick building on the banks of the river, in the most filthy part of the town, and surrounded by grogshops and groceries. The soldiers indulged in every kind of excess; and, on the 4th of July, says Assistant Surgeon H. Stevenson, "it may be safely

asserted that there were not ten sober men in the command." No case of disease was reported prior to the evening of the fifth day after arriving at Detroit. On the morning of the 6th, the first case of spasmodic cholera appeared; and up to the 20th of July, the whole number of confirmed cases treated by Assistant Surgeon Stevenson was 47, of which 21 terminated fatally. The command consisted of 78 men. From the premonitory symptoms there was scarce an instance of exemption. As at Fort Dearborn so here also, those of intemperate habits and debilitated constitutions were its first and principal victims.

The cause of the sudden appearance of this disease at Detroit, leaving an intermediate country of considerable extent uninfected, may be difficult to explain. At the time, it was generally believed that the principle of infection existed in the steamboat in which the troops were conveyed from Buffalo to Detroit, this vessel having been employed in transporting crowds of filthy foreign emigrants westward from Montreal and Quebec. The "Henry Clay," among the troops on board of which the disease also appeared, had been engaged in the same kind of service.

In tracing the progress of this disease along the line of the St. Lawrence and the lakes, as taken from Tulloch's "Statistical Report on the Sickness, Mortality, and Invaliding among the Troops in British America," the most remarkable fact is, its progression with post-like regularity.

			earance of the
		1832.	1834.
Quebec 3 Rivers between Montreal and Quebec Montreal, 180 miles above Quebec Kingston, 190 miles beyond Montreal Toronto, 184 miles beyond Kingston Fort George, 40 miles from Toronto Detroit and Amherstburg, at the extremity of Lake Erie	-	8th June. Escaped. 10th June. 16th " 28th " 14th July. 6th "	7th July. 9th " 11th " 26th " 30th " 13th Aug. { End of Au- gust.

In view of these facts, combined with the circumstance that it was marked by the same progressive course along the other principal channels of immigration, viz. the banks of the Ottawa, the Richelieu, and along Lake Champlain to New York, the doctrine of importation, (more especially as several persons died of the disease on their passage from Ireland,) and its subsequent communication by contagion, was strongly favored.

Along the British frontier, strict quarantine regulations were consequently rigidly enforced, both in respect to the troops and inhabitants; but although apparently effectual in some instances, in others, as in Europe, it proved of no avail. Prussia, for example, disputed its pro-

gress foot by foot, with all the strictness of her well-known military discipline; but despite the triple cordons sanitaires of Prussia and Aus-

tria, it soon penetrated the capitals of both kingdoms.

Those opposed to the opinion of its propagation by specific contagion, asserted that, admitting that cholera is principally restricted to the highways of human intercourse, it is along navigable rivers that localities most favorable for its production, and subjects most liable to become its victims, are most apt to be found. Although the history of the disease in our country shows that malaria had considerable agency in its production, yet it prevailed on the arid sands of Arabia and the rocky ridges of the Caucasus, as well as in defiance of the winter frosts of It seems obvious, however, that some general distemperature of the atmosphere existed during the prevalence of the disease. Such meteorological conditions may obtain no less than the particular vitiation which produces the "influenzas" which prevail under every variety of season and locality. Who has ever detected by chemical analysis marsh or animal miasmata, or any contagious principle? The epidemic constitution of the atmosphere was doubtless the predisposing cause, which merely required certain exciting circumstances to develope the malady. may be explained the earlier appearance of the disease at Detroit. the course of its gradual progression from the east, the epidemic constitution may have been less intense at Detroit than at many points in the rear; but owing to a concurrence of circumstances in regard to the exciting causes, such as the excesses of a camp "surrounded by grogshops and groceries," the disease may have been developed sooner than under ordinary circumstances. This opinion is favored by the fact that previously to the prevalence of cholera epidemically, and in many places in which it did not appear, there was a marked disposition to diseases of the digestive organs, as diarrhea and common bilious cholera.

The contagious nature of the disease is rendered still more questionable from the fact, confirmed by the whole current of medical testimony in Europe, Asia, and America, that neither physicians nor those in constant attendance exhibited any peculiar liability to it. Medical officers have slept in their hospitals; nurses, to quiet timid females, have shared their beds during the night; the bed-clothes of patients who have died have been immediately used; and yet no bad consequences have followed. At Warsaw, Dr. Foy inhaled the breath, tasted the dejections, and innoculated himself with the blood of patients, without contracting the disease. There remains, however, another fact which seems the *experimentum crucis*, viz. that thousands of persons have left infected districts, and died of the disease in various places, without communicating

it to the surrounding inhabitants.

It is thus apparent that the origin and nature of epidemic cholera are involved in much uncertainty, and that this seeming diversity of facts can only be reconciled by the adoption of the principle of *Chalin de Vinario*, one of the most celebrated physicians of the 14th century, viz: "that all epidemic diseases may become contagious, and all fevers epidemic;" a position confirmed by observers of all subsequent ages.

#### MADISON BARRACKS.

#### LATITUDE 43° 50'., LONGITUDE 77° 55'.

This station is at Sackett's Harbour, New York. Situated on the southern side of the bay formed by the entrance of Black river into Lake Ontario, it is distant from the latter 8 miles. The color of the water in the river, as its name indicates, is quite dark; a feature not unusual in this region. About three-fourths of a mile north-east of the post, a small creek empties into Black river. There are no marshes in the vicinity. As the barracks are elevated about 30 feet above the level of the lake, and as the surface of the lake is 232 feet above that of the ocean, it fol-

lows that the barracks are 262 feet above tide-water.

"The grounds around the garrison," says Assistant Surgeon T. Henderson, who has furnished a detailed description of the medical topography of this post, "are so level that they cannot be perfectly drained. The soil is dark, with much clay, and rests on stratum of limestone, which is from one to three feet below the surface. The nature of the soil and this superficial calcareous stratum keep the immediate vicinity of the post, even after ordinary rains, boggy and favoring terraqueous exhalation. The physical aspect of the surrounding country is waving and undulating. The soil is generally rich. The forest trees are maple, beech, birch, walnut, ash, elm, and hemlock. Esculent vegetables are produced in great abundance and variety. The staple agricultural product is wheat. No minerals are found in the immediate vicinity of Madison Barracks. About 50 miles north-east, lead mines of great value are wrought, and iron ore is obtained in the south-east part of the county (Jefferson) in which the station is located."

This post, as regards its general meteorological features, pertains to

the classification common to all the preceding stations.

The barracks and hospital, built of limestone, were erected in 1822. A new hospital, constructed of the same material, is now (1839) being built upon a more approved plan.

The following abstract comprises the diseases reported in 10 years:

ABSTRACT exhibiting a condensed view of the principal diseases at Madison Barracks, for a period of ten years.

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SE	1832	*55	-	•	•	1	4	34	63	•	•		. 4		18	64
	1831	118		٠	4	•	22	93	-	•	~	•	% <del>2</del>		20	179
	1830	101	2	•	•	•	14	49	-	•	4	-	27		13	114
	1829	104	31	•	•	•	6	39	٠	•	က	-	17	•	65	105
		420	10	•	•	•	128	130	5	•	19	11;	10	•	62	450
	1838	•	•	•	•	•	•	•	•	•	•	•5	doo	<b>1</b> 3 (	٥N	•
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	1830	26	જ	•	•	•	123	53	65	•	က	<u>ო</u>	% & %	٠	18	101
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	•	•	ver	; ;	: :	Diseases of the respirato-	ry organs Diseases of the digestive	organs Organs	em	•	Rheumatic affections	33	Wounds and injuries	•	ses	•
	•	ength	int fe	-		of the	ins of the	- Je	s syst	•	ic affe	1	and in	•	disea	•
	- 511	Mean strength	Intermittent fever	Kemittent	Synochal	Lypnus Diseases	ry organs	organs	nervous system	Dropsies	umat	Venereal	ounds	Ebriety	All other diseases	Total
	Years	Mea	Inte	Ken	ξ.	Dis	Dis	o Si	T I	Dro	Rhe	Ver	M M	Ebi	All	

\* The strength was 102, but as the post was evacuated on the 20th May, it is equivalent to 55 for the whole quarter.

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gR.	1838	451	23 3 1 1 1 1 1 2 2 2 3 3 3 3 1 1 1 1 1 1	7 26 25 353
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	1836	•		No troops.
ART	1835			. No troops.
L QU	1834			. No troops.
FOURTH QUARTER	829 1830 1831 1832 1833 1834 1835 1836 1837 1838			. No troops.
FOL	1832	•		No troops.
	1831	107	2 2 3	3 23 16 100
	1830	112		15 14
	1829	103	9. 1 33 15	22 22 110 10 92
		672	47 13 5 46 285 10 26	14 22 122 70 660
	1838	343	400. 4 % 0. 1	25 25 26 213
	1837			.sqoom oN .
133	1836			· No troops.
RTE	1835			sqoort oN .
QUA	1834	•		sqoort oN .
THIRD QUARTER.	1833			.No troops.
TE	1832	•		sqoort oN .
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	112	1 1 93 5	28 17 159
	1830	116	17 7 7 7 7 7 7 7 7 7 7 1 1 1 1 1 1 1 1	35
	1829	101	21	1 4 34 16 127
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	•	ength	of the	id absand in disea
	urs -	Mean strength	Intermittent fever	Venereal  Ulcers and abscesses Wounds and injuries Ebriety All other diseases - Total
	Years	Mes	Syn Tyy Disc Disc Disc Ren Chis Chis Chis Chis Chis Chis Chis Chis	All Ebr

Under the class of diseases of the respiratory organs are included 347 catarrh, 18 pneumonia, and 11 pleuritis; under the class of digestive organs, 433 diarrhæa and dysentery, 140 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 13 epilepsy and 7 mania a potu; and under that of venereal affections, 28 gonorrhæa and 8 syphilis.

As the deaths from all causes, according to the Adjutant General's returns, amount to 11, and the aggregate mean strength is 751, the annual ratio of mortality is  $1_{7}^{5}_{7}$  per cent. Of the deaths, 9 are reported in the medical returns, viz. 1 congestive fever, 1 intermittent fever, 2 pneumonia, 1 phrenitis, 1 ebriety, 1 chronic visceral obstructions, 1 atrophia, and 1 nervous irritation supervening on amputation of the right arm; the

ratio of mortality, excluding the last case, being  $1\frac{4}{10}$  per cent.

Although this station does not exhibit a higher mortality than the mean ratio of posts on the lakes, yet it is found that disease prevails to a considerably greater extent; but the most remarkable fact is, that this excess arises mostly from diseases of the digestive organs, more especially diarrhea and dysentery, whilst fevers of a malarial origin bear no corresponding ratio. Of cases of intermitting fever, the annual ratio is 20, and of remitting fever it is 3, per 100 of the strength. Although the average of intermittent fever is higher than that of Forts Brady, Howard, or Mackinac, it is lower than the ratio of Dearborn or Niagara, and little more than one-fourth as high as that of Fort Gratiot. table, designed to show the relative influence of the seasons upon disease in general, requires, in the present instance, some explanation. The first and second quarters exhibit the highest ratio of disease; but it will be found, on examining the preceding abstract, that if the third and fourth quarters of 1838, when the command was large and little disease prevailed, are excluded, inasmuch as the post was unoccupied in the first two quarters of that year, that the result will not vary from the general law.

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treat- ed quarterly.
4 first quarters - 4 second " - 4 third " - 4 fourth " -	- 420 - 378 - 672 - 773	450 462 660 649	1071 1222 982 841
Annual ratio -	- 561	2,221	3,959

Consequently, every man, on an average, has been reported sick once in every three months; the highest ratio yet presented.

"The annals of Sackett's Harbour," says Assistant Surgeon Henderson, "like those of the lake shores on the frontier generally, show that

formidable diseases have prevailed at all seasons of the year. During the war of 1812, the epidemic called pneumonia typhoides originated on the lines, and appeared at this place. Those who recollect that extraordinary disease, know that it existed in the winter and spring, ceasing in summer. In July, 1813, from a tenth to a fifth of the crews of Commodore Chauncey's squadron were on sick report at the harbor. In August, more than one sixth of the seamen were left on shore; and Cooper, in his Naval History, states that at one time in this season (1813) the Madison had nearly one-half of her complement on sick list. The same author says, "in the winter of 1814, the sickness at the harbor was of the gravest character. One-half of the crew of the Madison was sick, and one-fifth died. In the summer of that year, the operations of the squadron were delayed by the illness of the mechanics at the Navy Yard."

Since the peace of 1815 up to 1839, it would seem that no epidemic

of a malignant tendency has prevailed at Sackett's Harbor.

"In May and June, 1839," says Assistant Surgeon Henderson, "diarrhea became very rife at Madison Barracks, with here and there a case of fatal remittent fever. In July and the subsequent months up to this date, October 25th, the diarrhea has been almost universal. Cases of fever became more numerous in July and August, several

proving fatal.

"Let it be here observed, that the summer of 1838 was intemperately hot and dry; the summer of 1839 was cool and seasonable as to rain. General health prevailed east and south, except at Charleston, South Carolina, in 1838. In 1839, with a season throughout ostensibly favorable to health, so far as moderate heat and moisture are concerned, epidemic dysentery prevailed in New England; the most malignant endemics existed in New Orleans, Mobile, Pensacola, St. Augustine, Charleston, Augusta, Georgia, in Illinois, and in the towns and cities on the lower Mississippi. Is it then remarkable, that Madison Barracks should have been more sickly than usual? especially when it appears that, in several localities not far from the post, similar and severer visitations of fever appeared. Sackett's Harbor village has had more fever than has been known for twenty years. In the neighboring farming country, places usually healthy have suffered from fatal malarial sickness.

"And yet, as if the caprice of malarial influence were ever to baffle search into causes successfully, at Rochester and Buffalo, I am told, the troops were healthy, and at Plattsburg most remarkably so. Nearer to Madison Barracks, at Ogdensburg on one side, and at Oswego on the other, the towns were perfectly free from disease. I was informed by a very respectable physician at Oswego, that between May and the 22d August he had not seen one case of fever. At the same time, the eighth regiment, in all its departments, officers, soldiers, and families, was affected with diarrhæa; and as the autumn approached, remittent fever appeared very generally. In September [strength 592] there were forty-four cases of fever, exclusive of what appeared among the families. In October [strength 397] up to the 22d, there were thirty-eight

cases on the hospital register; making an aggregate, of what I have seen since the 23d of August, of about ninety cases, exclusive of jaundice and intermittent cases, that are forms of malarial disease; and especially exclusive of diarrhæa, the cases of which are extremely numerous and obstinate. This last disease would readily yield to hospital treatment and diet, but recurred too readily on going to quarters and to ration diet, or it would lapse into remittent fever."

In regard to the remedial management of the modification of fever alluded to above, he remarks, that "my conclusion is, that it is a tractable form of disease; requiring prompt vigilance to ascertain its earliest impression, and the immediate subjection of the soldier to the sanative influence of hospital treatment; and that, looking at the number of cases of diarrhea, fever, jaundice, and intermittent, the mortality was

not great."

In treating of the supposed causes of disease, it is shown that in 1838, when general health prevailed, all local circumstances, compared with 1839, when morbid action was very rife, were apparently disadvantageous. Again—"It is known that within a few years the lakes have risen between three and five feet, and are now falling. Popular opinion, which should always be attended to on such questions, though very often incorrect, has ascribed the sickness to this fall of water. I see nothing in the laying bare annually of a few inches of lake shore, nor in the draining of tributary streams, that could cause the sickness at Madison Barracks; for in the vicinity no grounds have been covered or laid bare by the rise or fall of the water, so as to afford malaria. This rise and fall of the vast interior seas is a phenomenon which cannot be philosophically considered as a cause of endemics."

In reply to the question, Is Madison Barracks a healthy station? the answer of Assistant Surgeon Henderson is in the affirmative, based on

the following reasons:

"Although in 1813 and 1814 there was much sickness at Sackett's Harbor, yet it was incident to the state of war, to the crowd of soldiers and sailors assembled hastily at the post, to the inadequacy of good food and shelter, and to the exposures and privations endured by the seamen and soldiers.

"Since the war the station has generally been healthy, and the vil-

lage adjoining uniformly so.

"If Madison Barracks has been more sickly during the present season, so has the surrounding country in various places, heretofore per-

fectly healthy.

"The inference that a station is unhealthy cannot legitimately be drawn from the experience of a season. The cause of the sickness at Madison Barracks in 1839 is, like the cause of summer and autumnal diseases, inscrutable. Disease seems to move in a cycle of years, and at some period of that cycle almost all sites are sickly."

It has been seen, however, that the result of statistical data show that this post, although the mortality is not higher, is more insalubrious than any other station on the lakes; and that this excess of disease arises chiefly from the class of lesions pertaining to the digestive organs. The

well known talents and industry of Dr. Henderson entitle his opinions upon medical subjects to much respect; but the result shows that there are questions connected with medical science which no ordinary observation, however aided by the efforts of genius, can decide. It is only by accumulating a multitude of facts, extending over diversified regions, and embracing thousands of individuals—the application of numerical analysis to the investigation of morbid action-that the comparative prevalence and influence of disease can be determined.

#### FORT HOWARD.

### LATITUDE 44° 40', LONGITUDE 87°.

This post is situated on the northwest bank of Fox river, one mile from the point at which it empties into Green Bay. This bay, which is an arm of Lake Michigan, indents the land for 90 miles. It commences 40 miles wide, and gradually lessens to four miles at its head, where it receives the waters of Fox river. "It is skirted about its head," says Acting Assistant Surgeon Ward, "with marshes a mile in width, covered with a luxuriant growth of grass and wild rice, which embrace the mouth of the river, and continue within half a mile of the fort. water is from six inches to six feet deep on these marshes, which, by the operation of a diurnal flux and reflux of the waters of the bay, are alternately flooded and drained twice every 24 hours. Twenty rods back of the fort another marsh begins, and, spreading to the right and left, extends a mile or more in each direction. It differs from the marshes just described in this, that it is partly covered with timber, thickets of alder, evergreens and grass." Proceeding north and west two miles, the country presents a densely wooded region, as far as explorations have been made. On the opposite side of the river, as far as Lakes Michigan and Winnebago, the country is also in its primitive state, covered with dense vegetation of forest and underwood. The soil mostly consists of a vegetable mould, intermixed with clay and sand; and is generally of a character to reward the labors of the husbandman.

The mean annual quantity of rain, on an average of four years, is

**38.83** inches.

This post, which is less under the modifying agency of the great inland seas than any other of the class, has been reserved for the last in description.

The diseases reported during the ten years are comprised in the fol-

lowing abstract:

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Howard, for a period of ten years.

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Under the class of diseases of the respiratory organs are comprised 384 catarrh, 6 pneumonia, 60 pleuritis, and 28 phthisis pulmonalis; under the class of digestive organs, 379 diarrhæa and dysentery, 184 cholic and cholera, and 10 hepatitis; under the class of diseases of the brain and nervous system, 15 epilepsy, 1 mania a potu, and 2 nyctalopia; and under that of venereal affections, 67 gonorrhæa, and 46 syphilis.

The deaths from all causes, according to the post returns, are 25, being  $1\frac{7}{10}$  per cent. per annum. Of these, 15 are reported in the medical returns, viz: 4 diarrhœa, 1 gun-shot wound, 1 influenza, 1 chronic pneumonia, 1 phthisis pulmonalis induced by excessive ebriety, and 7 of causes unreported. Including all these cases, the ratio of mortality is less than one per cent.; but, as the causes of death are not regularly reported, it is impracticable to give the exact ratio of mortality from disease. In 1829, the subjects of two deaths were recruits, who were "far gone" when they joined, and in 1832, one resulted from a gunshot wound, whilst the causes of 7 are not stated. It thus appears that

this station is a very salubrious one.

There is little in the history of disease at this post requiring comment. The annual ratio of intermittents is six, and that of remittents is three, per one hundred of mean strength. When it is considered that this fort, which occupies a sandy eminence about ten feet above the level of the bay, is almost surrounded by marshes, the low average of malarious fevers seems at first view inexplicable. It may be safely assumed that this exemption is owing to the circumstance that these low lands are always covered with water; and, upon the same principle, it follows that when drained and brought under cultivation, this station will become unhealthy. The following abstract exhibits the relative agency of the seasons in the production of disease in general.

 $TABLE\ showing\ the\ relative\ agency\ of\ the\ seasons\ in\ the\ production\ of\ disease\ in\ general.$ 

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
10 first quarters 10 second " 9 third " 10 fourth "	1,764 1,702 1,526 1,594	715 726 1,073 636	405 425 703 399
Annual ratio	1,647	3,150	1,913

Every man has, consequently, on an average, been reported sick about once in every six months. There are upon these ocean-lakes other posts which have recently, owing to the disturbances on that frontier, grown into importance, such as those at Detroit, Buffalo, and Plattsburg. The data, although insufficient to authorize the usual tabular arrangement, yet suffice to show that these stations are no less salubrious than those already described.

A general view of the results obtained from the statistics of the class of posts described, possessing the common characters peculiar to posi-

tions on our northern lakes, will show that this region is extraordinarily salubrious. The annual ratio of mortality according to the medical reports is  $\frac{1}{10}$  per cent., and, according to the Adjutant General's returns,  $1\frac{1}{10}$  per cent. Although there is little difference in the ratio of mortality at the various posts, yet the extent of sickness, as determined by the number of cases reported, presents considerable diversity. Fort Brady exhibits the lowest and Madison Barracks the highest average.

The following table shows these various relations at a single view,

based on the results of ten years-

TABLE exhibiting the ratio of sickness at different posts.

	Mean aggregate strength			Total of cases reported.	Ratio per 1,000 of mean strength under treatment annually.
Fort Brady -	962	11	6	1,275	1,325
" Mackinac -	865	5	2+	1,577	1,823
" Gratiot -	782	14*	2† 10	2,452	3,135
				939	
" Dearborn -	588	8	3‡		1,595
" Niagara -	570	10	8 9	1,439	2,525
Madison Barracks -	561	11	9	2,221	3,959
Fort Howard -	1,647	25	15	3,150	1,913
Aggregate -	5,975	84	53	13,053	
50 0	, , ,			,	
Ratio per 1,000 -	-	13§	9		2,185

As the ratio per 1,000 of mean strength under treatment is 2,185, it follows, pursuing the mode of calculation adopted, that each man, on an average, has been on the sick list once in every five and a half months. As cholera produced its greatest havoc among troops on the march, the

results do not appear in the returns from the posts.

To illustrate further the climate of the region of the great lakes, and to show the relative influence of the seasons in the production of morbid action, such diseases have been selected for elucidation in the subjoined abstract as have a manifest dependence upon meteorological causes. Typhus fever, it is true, may not belong to this class; but in order to present a complete view of all febrile affections, its inclusion has been deemed advisable. Under the head of synochal fever are condensed the cases registered as synocha, synochus, common continued, ephemeral, and inflammatory fevers; but the cases of this class, reported under the last name, constitute a majority of the whole.

<sup>\* 21</sup> deaths from epidemic cholera excluded.

<sup>† 1</sup> death from epidemic cholera excluded.

<sup>‡ 2</sup> deaths from epidemic cholera excluded.

<sup>§</sup> This result is based on an aggregate mean strength of 6,377, whilst that of the medical returns is 5,975. This difference is owing to the circumstance that some of the quarterly sick-reports are wanting.

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TABLE exhibiting the relative influence of the

DISEASES.	Fort Brady.	Fort Mackinac.	Fort Gratiot.	Fort Dearborn.	Madison Bar- racks.	Fort Niagara.	Fort Howard.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
INTERMITTENT FEVER										
Second " Third "	15 17 5	7 31 13 14	40 199 227 94	5 35 59 37	10 37 47 27	15 66 26 31	3 30 43 17	80 413 432 225	6371 5667 5648 6205	13 73 77 36
Annual ratio	- 37	65	560	136	121	138	93	1150	5973	193
REMITTENT FEVER.				-						
Second "	1 - 2 -	1 3 3 3	1 7 11 1	2 1 22 1	- 13 6	12 11 31 11	4 11 34 4	21 33 116 26	6371 5667 5648 6205	3 6 21 4
Annual ratio	. 3	10	20	26	19	65	53	196	5973	33
SYNOCHAL FEVER.	-									
Second "	4 3 2 3	2 1 1 1	9 6 3 3	1 - -	- 5 1	11 12 4 7	2 4 10 1	28 27 25 16	6371 5667 5648 6205	4 5 4 3
Annual ratio	- 12	5	21	1	6	34	17	96	5973	16
TYPHUS FEVER.						_				
Second "	3 2 1 9	- 1 -	2 - 1 1		- - 1	1 1 -	- 1 -	6 3 4 11	6371 5667 5648 6205	1 5-10 7-10 1 8-10
Annual ratio	- 15	1	4	_	1	2	1	24	5973	4
DIARRHERA AND DYSES	r-									
	- 23	18	36	11	55	18	58	219	6371	34
	- 28	36 63	32 92	16 65	95 160	26 63	75 203	308 685	5667 5648	54 121
	29	7	53	- 18	123	29	43	302	6205	49
Annual ratio	- 119	124	213	110	433	136	379	1514	5973	253

seasons in the production of morbid action, &c.

DISEASES.	Fort Brady.	Fort Mackinac.	Fort Gratiot.	Fort Dearborn.	Madison Bar- racks.	Fort Niagara.	Fort Howard.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
CATARRH AND INFLU- ENZA.										
First quarter Second " Third " Fourth "	74 56 46 72	66 47 50 40	119 79 24 124	30 8 6 18	102 38 32 183	55 54 30 64	129 70 94 91	575 352 282 596	6371 5667 5648 6205	90 62 50 96
Annual ratio -	248	203	346	62	355	203	384	1805	5973	300*
PNEUMONIA.										
First quarter Second " Third " Fourth "	3 4 16 10	1 2 5 3	4 12 - 5	1 1 - 1	4 6 5 3	10 5 1 3	1 2 - 3	24 32 27 28	6371 5667 5648 6205	4 6 5 5
Annual ratio -	33	11	21	3	18	19	6	111	5973	19
PLEURITIS.										
First quarter Second "	1 4 - 2	5 12 10 12	9 10 6 7	6 5 4 5	6 3 - 2	5 3 - 4	11 16 25 8	43 53 45 40	6371 5667 5648 6205	7 9 8 7
Annual ratio -	7	39	32	20	11	12	60	181	5973	30
PHTHISIS PULMONALIS.										
First quarter Second " Third " Fourth "	3 1 - 3	1 - - 2	2 1 1	1 - - 1	-	2 3 - 1	10 6 10 2	17 12 11 10	6371 5667 5648 6205	3 2 2 2
Annual ratio -	7	3	4	2		6	28	50	5973	8
RHEUMATISM.										
First quarter Second "	23 31 20 17	47 60 34 41	51 22 25 35	20 8 17 11	19 14 26 48	15 14 23 20	89 61 59 65	264 210 204 237	6371 5667 5648 6205	41 37 36 38
Annual ratio -	91	182	133	56	107	72	274	915	5973	151

<sup>\*</sup> As the mean strength of each quarter is not the same, the annual ratio of cases does not quadrate with the sum of the four quarters.

As the influence of climate in the production of the class of pulmonary diseases, will be more fully developed in proportion as the numerical results of each class of posts come under consideration, it is sufficient now to direct attention to the fact that, whilst with regard to catarrhal affections the influence of the seasons, in this class of posts, is strikingly manifest, the same law does not hold in relation to pleuritis, pneumonia, and phthisis pulmonalis. The ratio of cases of catarrh and influenza, which is, in the last quarter of the year, 96 per 1,000 men, gradually decreases in the first, second, and third quarters, the ratio of the last, (the season of summer,) being only fifty.\*\*

In respect to rheumatic affections, it is seen that the ratios of the second and third quarters are but little lower than the first and fourth.

The results obtained in the last column are important, as indicating the actual ratio in which these diseases prevail. If 1,000 men, for example, were stationed at the several posts, the average would show that, in the first quarter 13 would be attacked with intermittent fever, in the second quarter 73, in the third 77, in the fourth 36, and in the whole year 193. As these results, based on the statistics of ten years, embrace about 6,000 individuals, occupying seven different localities, the numerical ratios may be regarded as fair expressions of the general laws of this climate in relation to these diseases. Having once ascertained the laws which obtain in other regions of the United States upon these questions, as well as the precise mortality, conclusions of a valuable character may be deduced.

## II. THE COAST OF NEW ENGLAND.

The class of posts to be now brought under view extends along the coast of New England, from Eastport to the harbor of New York. Although arranged in a distinct class, they bear a striking similitude, as regards meteorological phenomena, to those already described. It is, therefore, deemed unnecessary to enter into any detail, more especially as the peculiar climatic features of this region were referred to in the introductory remarks of the preceding class. In regard to the mean temperature of the seasons, the range of the thermometer, and the relative proportion of fair and cloudy weather, there is no great disparity. Unlike the succeeding class—the inland posts remote from large bodies of water—the air is moist, and the changes of the seasons are more slow and uncertain.

<sup>\*</sup> In the calculations of this class, the statistics of Fort Independence in reference to pulmonary diseases have been excluded, on the ground that some error exists. The total of pleuritis and pneumonia is eight times as high as that of catarrh, whilst the ratio of the former is nearly twenty times as high as that of the remaining posts of the class. As but one death is reported among 261 cases of pleuritis and pneumonia, that a great majority belonged to the class of catarrhal affections is probable.

#### FORT SULLIVAN.

#### LATITUDE 44° 44', LONGITUDE 67° 4' W.

Fort Sullivan is the most northern post on the Atlantic coast, being near the line of the British possessions. It is situated on Moose island, which is close to the main land, a small isle intervening. The town of Eastport is on the same island, which is about four miles long and two wide, having a rocky and sterile soil. The fort is elevated about 70 feet above the level of the ocean.

The diseases reported during the ten years are comprised in the fol-

lowing abstract-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Sullivan, for a period of ten years.

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Under the class of diseases of the respiratory organs are comprised 102 catarrh, 24 pneumonia, 27 pleuritis, and 3 phthisis pulmonalis. Under the class of digestive organs, 30 diarrhæa and dysentery, 60 cholic and cholera, and 10 hepatitis. Under the class of diseases of the brain and nervous system, 11 epilepsy, and 11 mania a potu; and un-

der that of venereal affections, 2 gonorrhea, and 2 syphilis.

The deaths from all causes, according to the Adjutant General's returns, are 17, being nearly four per cent. per annum. Of these, all are reported in the medical returns, viz: three epilepsy, one apoplexy, two phthisis pulmonalis, one typhus, one remittent fever, one cynanche maligna, one scorbutus, one concussion of the brain, and six from causes not designated. The rate of mortality, (four per cent.,) without some explanation, will lead to unauthorized inferences; for, excluding the year 1829, in which are reported 11 deaths, the ratio is only  $1^{-6}_{-0}$  per cent. In this year, there were three fatal cases of epilepsy and one of apoplexy, all induced by the excessive use of ardent spirits, one of concussion of the brain from a fall upon the ice, also caused by inebriety, one from scurvy, and five from causes not stated, the post being attended by a civil practitioner.

This post is, indeed, a very salubrious one. No disease of a malignant tendency has, at any time during the above ten years, prevailed. Intermittent fever may be said to be unknown; for, although seven cases are reported, yet, as none occurred in the third quarters, it is probable that these cases were originally contracted in other localities. The

average of diarrhea and dysentery is also exceedingly low.

The relative agency of the seasons in the causation of disease in general is shown in the following abstract—

TABLE exhibiting the ratio of sickness.

Seasons.		Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
8 first quarters		484	220	455
8 second "	-	455	206	453
7 third "	-	389	222	573
7 fourth "	•	399	220	551
Annual ratio	-	432	868	2,009

It thus appears that each man, on an average, has been reported sick once in every six months.

# FORT PREBLE.

LATITUDE 43° 38' N., LONGITUDE 70° 18' W.

This post is situated on Cape Elizabeth, on the side of Portland harbor opposite the town of the same name. The harbor is about one mile wide at this point, at which it opens directly into the ocean. The fort is elevated about 20 feet above the level of the sea, the grounds in the rear becoming higher, and consisting mostly of masses of bare rock. The soil is dry, hard, and gravelly.

The diseases reported during the ten years are comprised in the fol-

lowing abstract-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Preble, for a period of ten years.

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	1838	•		•
	1837	•		•
ER.	1836		Evacuated May 30th, for Fort Mitchell.	•
ART	1835	•	No report.	•
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SECOND QUARTER	1833	48	18 1	14
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	1831	58		41
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	1829	49	1 1 1 1 1 1 1 2 1 2 1 3 1 1 1 1 4 1 2	20
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	1838	•		•
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•		•
R.	1836	22		6
RTE	1835	•	No report.	•
QUA	1834	50	10.10.10.10.1	13
FIRST QUARTER.	1833	48		16
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	1831	61	.48. 4 1 1 4814.	25
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	1829	20		13
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	838	•			•	•	•	•		•	,	•	•	•	<u> </u>
	837	,		•	•	•	,	•			•		•		
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RTE	1835	57			0	-	5	C.S	. 01	•	-	65	-	-	16
THIRD QUARTER.	1834	63	. <		_		2	•	. 6	65	•	63	,	63	12
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Under the class of diseases of the respiratory organs are comprised 49 catarrh and influenza, 12 pneumonia, 18 pleuritis, and 7 phthisis pulmonalis. Under the class of digestive organs, 35 diarrhæa and dysentery, and 39 cholic and cholera. Under the head of diseases of the brain and nervous system, 6 epilepsy, and 2 mania a potu; and under that of venereal affections, 32 gonorrhæa, and 19 syphilis.

The total of deaths, according to the Adjutant General's returns, is 11, being  $2\frac{7}{10}$  per cent. per annum. Of these, seven are reported in the medical returns, viz: 2 phthisis pulmonalis, 1 typhus fever, 3 from causes not designated, and 1 drowned; giving, without including the

last, a mortality of  $1_{10}^{6}$  per cent.

This station is equally healthful with the preceding one. As no more than four cases of intermittent fever are reported, and as these occurred in the same quarter, it may be assumed that this disease is unknown in this locality. It is found, however, that remittent fever exhibits comparatively a high ratio. The relative agency of the seasons in the causation of disease in general, is shown in the following table—

TABLE exhibiting the ratio of sickness.

	Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
,	7 first quarters - 6 second " 7 third " 7 fourth "	382 336 392 394	130 138 167 141	340 411 426 358
	Annual ratio	376	576	1,532

Each man, on an average, has consequently been reported sick once in nearly every 8 months.

## FORT CONSTITUTION.

#### LATITUDE 43° 04' N., LONGITUDE 70° 49' W.

Situated on a peninsula which forms the most eastern point of the State of New Hampshire, in the county of Rockingham, between two and three miles from Portsmouth, Fort Constitution is washed on the south by the Atlantic, and on the north by the Piscataqua river. The country adjacent is uneven and rocky. Small marshes, some fresh and some salt, as well as peat beds, are found on Great Island, about half a mile distant. The soil is not very productive.

The mean annual quantity of rain, on an average of four years, is

 $\mathbf{28.85}$  inches.

The diseases reported during the ten years are comprised in the following abstract.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Constitution, for a period of ten years.

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FIRST QUARTER.	1834	48		.c
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	1830	61		27
	1829	55	13. 1	22
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ABSTRACT—Continued.

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BR.	1836	•	. '	•	•	1	•	•	•	•		•	•	•	•	•	
ART	1835	54		•	ı	63	•	-	•	•	•	_	•	4	•	က	11
FOURTH QUARTER.	1834	61		•	•	•	15	က	-		•	63	-	•	•	•	22
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		365	-			•	က	23	•	•	ಬ	13	_	4	•	rC.	55
	1838	•		•	•	•	•	•	•	•	•	٠	•	ı	•	•	
	1837	•	•	•	•	•	•	•	•	•	٠	•	•	•	•	•	•
18	1836	•	•	•	•	•		•	•	•	•	٠	•	•	•	•	•
ARTE	1835	55	1		•	٠	•	г	•	•	_	4	_	-	•	•	6
On7	1834	54	•	•	•	•	•	63	•		•	က	•	•	•	•	2
THIRD QUARTER.	1833	20	•	•	•	•	•	-	•		લ્ય	લ્ય	•	•	•	-	9
TI	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	51	'	•	•	•	•	•	•	•	•	•	•	_	•	CQ.	က
	1831	46	•	•	•	•		က	٠	•	_	•	•	•	•	-	2
	1830	52	,	•	•	•	•	4	•	•	•	4	•	-	٠	•	6
	1829	22	•	•	•	•	က	12	٠	•	1	•	•	-		-	18
	•	•	-	•	•	•	atory	1 70	- E	•	•	•	1	•	•	•	•
	•	'	ver -	·	. ′	ı . y	respira	hrain.	em -	•	ctions	•	sesses	njuries	•	ses -	
	'	ength	ent fe			;	of the	of the	s syst	•	ic affe	•	d abs	and ii	•	disea	tal -
	rrs -	Mean Strength	Intermittent fever	Kemittent	Synochal	Typhus	Diseases of the respiratory organs  Diseases of the digestive	organs - Organs	nervous system -	Dropsies	Rheumatic affections	Venereal	Ulcers and abscesses	Wounds and injuries	Ebnetas	All other diseases	Total
	Years	Mea	Inte	Ken	E S	TX	Disc	Disk		Dro	Rhe	Vei	200	M i	E D	All	

Under the class of diseases of the respiratory organs are included 30 influenza and catarrh, 7 pneumonia, 4 pleuritis, and 2 phthisis pulmonalis; under the head of digestive organs, 7 diarrhœa and dysentery, and 82 cholic and cholera; under the class of brain and nervous system, 1 apoplexy, and 1 delirium tremens; and under that of venereal affections, 31 gonorrhœa, and 17 syphilis.

The deaths, according to the post returns, amount to seven, being  $1_{10}^{10}$  per cent. per annum. Of these, six are reported in the medical returns, viz: one pneumonia, one phthisis pulmonalis, one enteritis, one convulsions, one apoplexy, and one asphyxia from submersion; giving,

without including the last, a mortality of 13 per cent.

It is remarked by Assistant Surgeon James H. Sargent, who has been stationed at this post for many years, that "it is so healthy that the hospital is seldom occupied"—a fact plainly evident from the abstract given above. A case of fever is, indeed, a rare phenomenon. But one case of intermittent fever is reported, and this came from Fortress Monroe. There is no case of remittent fever. Of inflammatory fever there are two, and of typhus six cases are reported.

Dr. Sargent observes that in 33 years' practice he has known, at this post or its vicinity, but one case of intermittent fever which was not of

foreign origin.

On referring to the history of this post prior to 1829, it will be found that in the third quarter of 1825 nearly every man in the command was attacked with cholic and cholera morbus, but that no case terminated fatally. No cause was assigned.

The following abstract exhibits the relative agency of the seasons in

the causation of disease in general-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
8 first quarters, 7 second " 7 third " 7 fourth "	443 371 365 382	99 70 55 96	226 189 151 251
Annual ratio	390	320	821

Consequently every man, on an average, has been reported sick but once in every seventeen months and a half.

#### FORT INDEPENDENCE.

#### LATITUDE 42° 22' N., LONGITUDE 71° 2' W.

This post, situated on Castle Island in the harbor of Boston, occupies an eminence of 40 feet above the sea. The island, which has a hard and gravelly soil, is in dimensions 1,000 by 900 feet, having a sandy tongue running off 700 feet. It is distant three miles southeast from the Statehouse. The nearest land on the west is the extreme point of West Boston, known by the name of Dorchester point, which is three-fourths of a mile distant. On the south, the nearest point is Thompson's Island, distant one mile and a half; and one mile north is Governour's Island, which overlooks Fort Independence 60 feet, and,

in military language, commands it.

"In point of situation," it was remarked by Assistant Surgeon Mann in 1827, "no post can be more salubrious than this, inasmuch as the tide ebbs and flows from 10 to 14 feet, and there are no stagnant waters in the vicinity to generate infectious miasmata productive of autumnal fever. Since I have been stationed here, there have been two seasons of epidemic pneumonia; the first in the spring of 1821, and the last, which was accompanied with many severe cases, in the spring of 1826. These epidemics were not confined to this post, but extended over the New England States, and, if I am not mistaken, as far south as Virginia."

The following abstract comprises the diseases reported in ten years-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Independence, for a period of ten years.

		574	က	_	53	-	47	110	90		27	14	16	9	0	82	406
	1838	•		•	•	•	•	•	•	•	•	•	٠	•	,	•	,
	1837	•	•	•	•	•	•	=		•	•	•	•	•	•	•	
3R.	1836	,	,	•	•	•	•	•	•	•	•	•	•	•	•	,	•
ARTI	1835	•	•	٠	٠	•	•	•	•	•	•	•	•	•	•	•	•
SECOND QUARTER.	1834		٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•
OND	1833	53	•	•	•	•	က	က	٠,	•	,	•	•	-	,	14	12
SEC	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	99	•	•	•	•	2	18	1	•	-	63	-	14	•	37	79
	1831	142		-	9	•	18	31	က	•	4	က	63	16	63	11	97
	1830	168	က	,	14	7	က	24	4	,	6	20	က	17	જ	10	95
	1829	155	•	•	0	•	18	34	•	•	13	4	10	12	-	13	114
		564	65	•	21	•	100	53	10	•	25	20	10	61	<u>د</u>	47	351
	838	•	•	•	•	•	<del></del> -	•	•	•	•	•	•	•	•		•
	1837			•	•	•	•	,		•	•	•	•	•	•	•	·
ئم	836		١,	•	•	•	•	•	,	•	•	•	•	•	•	•	
FIRST QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	<u> </u>	•		•	,	•	•	•	•	•	•	•	,	•	-
QUA)	1834		•	•	•	•	•	•	•	•	•	•	•	•	•	•	1.
ST	1833	55	•	•	•	•	13	က		•	•	63	•	က	•	9	27
E	1832	61		•	લ્શ	•	23	Ξ	1	•	9	-	લ	15	•	œ	75
-	1831	152	-	•	~	•	18	12	•	•	4	~	-	21	es	11	84
	1830	176	-	,	က	•	88	19	-	•	12	က	4	11	•	11	93
	1829	120		•	6		18	œ	61		က	~	က	Ξ	•	11	122
	•	•	•	•	•	•	ira-	tive .	and -	•	•	•	•	•	•	•	,
	Years	Mean strength .	Intermittent Fever	Remittent " -	Synochal "	ryphus "	Diseases of the respira- tory organs	Diseases of the digestive organs	Diseases of the brain and	Dropsies -	Rheumatic affections	Venereal "	Ulcers and abscesses	Wounds and injuries	Ebrietas	All other diseases	Total

ABSTRACT-Continued.

1		426	1		14	_	94	28	6		25	23	10	34	•	51	296
	1838			•	•	•	•	•	•	•		•	•			•	
	1837			,	•	,	•	•	•	•	•	•		•	•	•	,
ER.	1836			•	•	•	•	•	•	,	•	•	•	•	•	•	
ART	1835			•	•	•	•	•	•	•	•	•		•	•		•
FOURTH QUARTER.	1832 1833 1834 1835 1836 1837 1838	٠	•	,	•	•	•	•	•	•	•	•	•	,	•	•	·
JRTE	1833	• 0	,	•	•;	90.	moM	Jroff.	ot E	ıe	ter	su	ext	sd	00	ıΤ	•
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	1831	53	1		1	•	31	80	9	•	4	9	2	6	•	œ	79
	1829 1830 1831	147	က	•	7	•	16	લ્ય	အ	•	10	12	ī	9	•	4	64
	1829	170	3	•	9	_	42	15	•	•	11	4	4	15	•	15	116
		570	4	_	16	-	49	175	1-	_	36	16	13	22	_	88	483
	1838	•	•	•	•	•	•	•		•	•	•	•	•		•	
	1837	•	•	•		•	•	•	•	•	•	•	•	•	•	•	
R.	1836	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
RTE	1835	•		•	•	•	•	•	•	•	•	•	•	•	,	•	
QUA	1834	•	•	•	•	•	•	•		•	,	•	•	•	•	•	•
THIRD QUARTER.	1833	53	,	,	•	•	က	4		•	-	•		<u>}~</u>	•	14	39
T.	1832	61		•	•	<u>.</u>	က	22	63	•	CS.	_	-	œ	•	41	110
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	132		,	က	•	15	20	က	•	12	4	٠	18	-	16	122
	1830	160	જ	•	2	1	11	31	-	_	6	¢73	•	20	•	7	90
	1829	164	લ્સ	-	œ	-	17	38	1	•	12	00	12	22	•	10	132
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	•	ength	ent fe	_			of the	of the	of the s syst	•	ic affe		sqe pu	and i	•	disea	•
	ars -	Mean strength	Intermittent fever	Remittent	Synochal	Typhus	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and nervous system	Dropsies	Rheumatic affections	Venereal	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases	Total
	Years	Me	Inte	Rer	Syr	Ty	Dis	Dis	Dis	Dro	$Rh\epsilon$	Vei	25	M	Eb	All	

Under the class of diseases of the respiratory organs are comprised 33 catarrh, 222 pneumonia, 39 pleuritis, and 8 phthisis pulmonalis. Under the head of digestive organs, 172 diarrhæa and dysentery, and 81 cholic and cholera. Under the class of brain and nervous system, 20 epilepsy, and 9 delirium tremens; and under that of venereal affections, 43 gonorrhæa, and 30 syphilis.

The deaths, according to the Adjutant General's returns, number 13, being  $2\frac{1}{10}$  per cent. per annum. Of these, 9 are reported in the medical returns, viz: one pneumonia, two phthisis pulmonalis, one marasmus, three from causes not designated, and two casualties, (one from suicide and the other from drowning,) giving, excluding the two last, an

annual mortality of  $1\frac{3}{10}$  per cent.

The only fact in the history of disease at this post requiring comment is the remarkable prevalence of pleuritis and pneumonia compared with catarrh. The ratio of the first two is eight times higher than the last; whereas it has been seen that the general law, as deduced from seven posts on the lakes, shows that the ratio of catarrh is six times higher than the average of pleuritis and pneumonia; whilst a similar comparison of the class of posts now under consideration, excluding this station, shows that the ratio of the former is five times higher than that of the latter. As but one death from pneumonia, however, is reported, it is apparent that the lesions registered under this nosological term must have been of a slight grade of intensity.

The relative agency of the seasons in the causation of disease in gen-

eral is exhibited as under-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
5 first quarters 5 second " 5 third " 4 fourth "	564 574 570 426	351 406 483 296	622 707 847 695
Annual ratio	533	1,536	2,882

Hence every man, on an average, has been reported sick once in every four months.

### FORT WOLCOTT.

#### LATITUDE 41° 30', LONGITUDE 71° 18'.

This fort is situated on Goat Island, which is 150 yards wide and half a mile long, within the harbor of Newport. It is two miles from the sea-shore, and half a mile from the town of Newport on the island of Rhode Island. The surface of Goat Island consists of a rich mould, elevated about 20 feet above the ocean. The drainage is good. On the southeast, distant about a mile, is a salt marsh half a mile square; and on the northeast, somewhat nearer than the former, is a lagoon, into which the tide flows constantly. In regard to barrack accommodations, the men occupy rooms 20 feet square, with thick and arched walls, the second story, constructed of wood, being occupied as officers' quarters.

The diseases reported during the usual period of ten years are con-

tained in the subjoined table—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Wokott, for a period of ten years.

		349	86 . 9 . 7 . 26 . 9 . 33 . 32 . 7 . 7 . 26 . 133 . 32 . 32 . 33 . 33 . 34 . 34 . 35 . 35 . 35 . 35	131
	1838	•		•
	1837	,		
ER.	1836		May 22, evacuated for Fort Mitchell.	•
JART	1835	59	4	32
D QT	1834	37	8 =	=
SECOND QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	50	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	17
SE	1832	42		15
Þ	1831	49	''' & ro ''9844-0-	27
	1830	22	a a a a .a	14
	1829	55	æ.æ. 4 ⊣.æ«	15
		429	9 - 9 - 2 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9	150
	1838	•		
	1837	•		•
2	1836	20	,,,, 4 H ,,,,,	9
RTE	1835	63	2, 51, 11, 11 0	17
FIRST QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	38		17
RST	1833	55	10 10 10 10 10 10 10 10 10 10 10 10 10 1	22
FI	1832	51	100	25
	1831	59		24
	1830	58		16
	1829	55	''8' ∞ ⊔ ''8'48'4	23
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	•	'	ver	•
	•	ength	of the system of the of the of the of the caffed absending and in disease	١.
	Years -	Mean strength	Remittent ". Synochal "  Typhus "  Diseases of the respiratory organs  Diseases of the digestive organs  Diseases of the brain and nervous system  Dropsies  Cherral "	Total
	Yee	Me	Interpretation of the control of the	

ABSTRACT-Continued.

		382	-		49	12	9 . 2	20 10 10 25	140
	1838					•	1 1 1	1 1 1 1 1	•
	1837	•	'		•	'			1.
ER.	1836	.	.		•	,	, , ,		1
FOURTH QUARTER.	1832 1833 1834 1835 1836 1837 1838	53	-		00	•		– છ	13
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	1829	59		ო.	4	က	es • w	⊣ . ന . ന	33
		362		· 63 ·	6	49	7 . 9	3 12 46 19	156
	1838		1	1 1	•				
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•		,	•	•			
R.	1836	•	., .		•	,			
THIRD QUARTER.	1835	28			4	œ	, , ,		14
QUA	1834	22		€ .	•	14		. 1402	40
IRD	1833	44			'	2		= .	16
TH	1832	49			-	-	⊣	00 00 00	17
	1831	41	, ,		က	9	e	3.44	20
	1830	22			-	5	m	1 6 4 9 1	22
	1829	56		1 1	•	10	• • · · · · · · · · · · · · · · · · · ·		22
	'	•		9te	stive	and		70	'
	•	•	ver -	Synochal fever Typhus fever Diseases of the resuirato-	ry organs - Diseases of the digestive	organs - Diseases of the brain and	nervous system - Dropsies Rheumatic affections	Venerean Ulcers and abscesses Wounds and injuries Ebriety All other diseases	'
	•	ength	ent fe t feve	fever fever of the	ans - of th	of the	is syste	and is	Total -
	ars -	Mean strength	Intermittent fever - Remittent fever -	Synochal fever Typhus fever Diseases of the	ry organs -	organs iseases of	Dropsies Rheumatic affection	Venereal Ulcers and abscesses Wounds and injuri Ebriety All other diseases	T
	Years	Me	Inte	Tyl Dis	r Dis	Dis	_ TA 5	A E A C A	

Under the class of diseases of the respiratory organs are included 93 catarrh, 17 pneumonia, 5 pleuritis, and 2 phthisis pulmonalis; under the head of digestive organs, 64 diarrhæa and dysentery, and 14 cholic and cholera; under the class of brain and nervous system, 2 epilepsy, and 11 delirium tremens; and under that of venereal affections, 11

gonorrhæa, and 1 syphilis.

The total of deaths, according to the post returns, is 5, being  $1_{75}$  per cent. per annum. Of these, all are reported in the medical returns, viz: 2 phthisis pulmonalis, 1 mania a potu, and 2 asphyxia from submersion. In 1832, when the fatal case of delirium tremens was reported, it is remarked by Assistant Surgeon Wm. Turner, that it is the first death that occurred in five years in an average of more than 100 persons, including engineer officers and their families, as well as the families of enlisted men; and this death he regards virtually a case of suicide. In 1834, in reporting a death from drowning, Dr. Turner speaks thus:—
"The only three deaths amongst the troops in seven years, have occurred one from delirium tremens and the other two from accidental drowning whilst in a state of intoxication." In reporting a fatal case of phthisis pulmonalis in the second quarter of 1835, it is again remarked that this case and one of mania a potu are the only two deaths from disease in the period of eight years, amongst the troops, including the officers of the corps of engineers and their families.

It is observed by Assistant Surgeon Turner that no epidemic ever prevails at this station. So complete an exemption is there from all febrile affections, with the exception of simple inflammatory fevers, that he never met, in the course of thirty years' practice, with a single case of intermittent fever which could not be traced to foreign origin. Of remittent fever, there is but one case reported. There are many cases of "febricula from intemperance" registered, all of which are placed under the head of ebriety. Indeed, what little disease prevails among the troops at this post is ascribed by Dr. Turner mostly to the abuse of

spirituous liquors.

The following abstract exhibits the relative agency of the seasons in the causation of disease in general—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
8 first quarters - 7 second " - 7 third " - 7 fourth " -	429 349 362 382	150 131 156 140	350 375 431 367
Annual ratio -	380	577	1,519

Hence every man, on an average, is reported sick once in every eight months. It is observed, however, by Assistant Surgeon Turner, that none but hospital patients are included in his quarterly sick reports.

#### FORT TRUMBULL.

LATITUDE 41° 22' N., LONGITUDE 72° 05'.

This fort is situated on the right bank of the River Thames, one mile below New London, and two and a half miles from the shore of Long Island Sound. It is elevated fifty feet above the level of the ocean, the position is rocky, and the drainage good. The river opposite the fort is about half a mile wide; and within the same distance from the fort, are two small salt marshes. The soil of the surrounding country is rather sterile, presenting an undulating aspect, rising in prominent ridges of eighty or one hundred feet, with rock frequently breaking forth abruptly upon its surface.

The following abstract comprises the diseases reported in the ten years—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Trumbull, for a period of ten years.

		516	6	. 4		23	26	64	. =	7	4 5	70	175
	1838				•		•	,		,			
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	-			•	•	•	1		•			
ER.	1836			'n	әцә	iM 31	o'I 10	j bə	park	шə	'pez	XeW	1 =
SECOND QUARTER.	1835	123			•	12	દર	٠	. ന	,	- 2	13	36
o on	1834	11.	4		•	-	4	ς₹		•	75 -	4 2	30
ONI	1833	57			•	¢,	œ	•		•	es es		16
SEC	1832	55	1	. 63		-	es	٠	. 68	63	. 63	19	31
	1831	110		, 63	•	S	ro	•	. 01	က	. 03	16	36
	1830	•			•	•	•	•			rod	No re	ĺ ·
	1829	100	4		,	લ્શ	5	٠	. თ	ςş		10	36
		635		- 2		45	40	લ્ર	15	13	32	78	239
	1838					,	•	,		•	٠,٠		
	1837				•	,				•			•
24	1836	55	,		•	œ	•	-			. 63		13
RTE	1835	126			•	16	•	•		•	. 0	. ::	36
QUA	1834	55				4	16	-	, ct	•		. 9	36
FIRST QUARTER.	1833	55	'		•	65	1	1	. 4	-	- 2	- 63	17
FI	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	56	•	, ¢t	•	•	9	,	. 63	က	, m	15	31
	1831	118	1	. თ	•	11	r	•	. 63	~	٠ ٠٥	25.	89
	1830	118	'	<b>-</b> .	•	¢5	4	•	. 63	cs	. 63	10	23
	1829	52	•			લ્ય	œ	•	. 63		- 4	, ∞	25
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	rs -	Mean Strength	Intermittent fever	Remittent fever Synochal fever	Typhus fever	ry organs	organs	nervous system -	Propsies Rheumatic affections	Venereal affections	Ulcers and abscesses Wounds and injuries	Ebriety - All other diseases	Total
	Years	Mea	Inte	Ren	Lyp	r. J.	or Dise	ă	Uro Rhe	Ven	Ulce Wol	Ebriety All othe	

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	1837				,	1			1 1	1
ER.	1836	•		,	•	•				
FOURTH QUARTER.	1835 1836 1837 1838	92		63	1		-	4	9	13
н оп	1834	128		14	7	1 1	က	«	22 . 23	52
URT	1833	55		-	27			1 - 6	. თ	43
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	1829	118		က	œ 		က ေ	8 , ,	10	26
		22.9	, ww.	29	54	, -	6	34 4	. 84	237
	1838			1	•	1.	•			•
	1837	,			•		•		• •	
٠,	1836	•		•	•	1 1	•			
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	117	s s s't	16	4	1 1		15	13	20
QUA)	1834	109		က	10	,		8 10	23	44
RD	1833	72		-	15	1 1	1 1		1 05	22
TH	1832	58	,	,	ro	' '	es ,	- 62	01	21
	1831	103	1 65 65 1	4	1		63 65	14	1.1	35
	1830	110 108	න 1 1 1	4	9	1 1	- 8	- 8	12	31
	1829		4 , , ,	-	2		ကက	, m	13	34
	Years	Mean Strength	Remittent fever Synochal fever Synochal fever Typhus fever Typhus fever Typhus fever	ry organs Diseases of the digestive	organs Diseases of the brain and	Dropsies	Rheumatic affections - Venereal affections -	Ulcers and abscesses	Ebriety All other diseases	Total

Under the head of diseases of the respiratory organs are comprised 95 catarrh, 6 pneumonia, 16 pleuritis, and 8 phthisis pulmonalis; under the class of digestive organs, 56 diarrhæa and dysentery, and 47 cholic and cholera; under the head of brain and nervous system, 2 epilepsy, and 1 mania a potu; and under that of venereal affections, 26 gonorrhæa, and 6 syphilis.

The total of deaths, according to the Adjutant General's returns, is 13, being a little above two per cent. per annum. Of these, 7 are reported in the medical returns, viz: 4 phthisis pulmonalis, 1 dropsy, 1 atrophia induced by intemperance, and one compression of the brain from a rupture of a blood vessel, making about one per cent. of mortality.

This post still maintains the character of salubrity found on the coast of New England. Fevers of malarial origin are scarcely known. In the second quarter of 1832, 15 cases of "spotted fever" are reported, none of which proved fatal. In the neighboring town of New London, there occurred between three and four hundred cases, which terminated fatally in the ratio of about four per cent. It was treated with powerful stimulants both internally and externally. The epidemic seems to have been widely diffused.

The relative agency of the seasons as regards the ætiology of disease in general is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
8 first quarters - 6 second " - 7 third " - 7 fourth " -	635 516 677 588	239 175 237 208	376 339 350 354
Annual ratio -	604	859	1,422

Hence every man, on an average, was reported sick once in nearly every  $8\frac{1}{2}$  months. Contrary to a general law, this table exhibits a higher ratio of diseases in the first and fourth than in the second and third quarters. The absence of morbific agents of a malarial nature, may have some share in the explanation of this result.

#### FORT COLUMBUS.

#### LATITUDE 40° 42', LONGITUDE 74° 02'.

This post is on Governor's Island, in the harbor of New York. This island, situated near the confluence of the Hudson and that arm of Long Island Sound called the East river, is distant from the main, at the nearest point, about half a mile, and from the ocean at Sandy Hook about 20 miles. It is about a mile in circumference, with a soil composed of sand, intermixed with fine gravel and loam, based upon ferruginous clay. The portion brought under cultivation yields in abundance the usual esculent vegetables of the climate. There are no swamps or marshes in the vicinity, and in consequence of the regular artificial slope in every direction from the fort to the water, the drainage is perfect. Exclusive of ten large cisterns, capable of containing many thousand gallons, it is abundantly supplied with excellent water from five wells.

This post constitutes the last of the class now under examination, embracing those situated on our northern Atlantic coast. vailing winds," says Assistant Surgeon J. P. Russell, who has furnished these facts in relation to the medical topography of this post, "are, during the summer, south to south-west, and during the winter, north-west to northeast; the mean temperature for the year is about 53° of fahrenheit, and the annual quantity of rain is from 36 to 40 inches." This island is almost constantly fanned by refreshing and invigorating breezes from the ocean.

A new hospital on the south side of the island is now being finished. Well constructed and commodiously arranged, it combines all the advantages of modern improvements. The wards are furnished with iron bedsteads, an improvement now being generally introduced in our hospitals and barracks.

The diseases reported during the ten years are comprised in the fol-

lowing abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Columbus, for a period of ten years.

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	1838			•	•				
	1837	•		,					
IR.	1836			-1	.6	biroľ	T 101 I	Embarked	
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	1831	222	m , , ,	41	17			25 - 90	192
	1830	239		33	00		10	3 14 79	149
	1829	199		7	0.5		ကတ	65 s	94
		1081	က ଦଃ ଦଃ ।	86	31	5	20 56	9 61 8 168	457
	1838	•	1111	1		•			
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	'	1111		,	•		1 1 1 1	
R.	1836	50	. 1 1 1 1	85	က	•	.က .	3.61	18
RTE	1835	90		19	က	•	. – 4	. 8 7 13	55
FIRST QUARTER.	1834	83		9	œ	'	. <del></del> .	(∞ (က	31
RST	1833	94	65 .	2	က	4	9	9	29
FI	1832	09		4	-	•	. ro co	15 - 3 -	31
	1831	238		23	4	•	3	5 - 5	[ =
	1830	244		24	2	-	5 10	19	97
	1829	240	,,	15	4		, – =	12 1	85
	Years	Mean strength	Intermittent fever Remittent fever Synochal fever	Diseases of the respirato-	Diseases of the digestive organs	Diseases of the brain and nervous system -	Dropsies - Rheumatic affections -	Venereal Ulcers and abscesses Wounds and injuries Ebriety	Total

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	1838			1 1	•	•	1	•	•		•	•	•	•	•
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ER.	1836	•			ı	•	•	•	•		•	•	•	1	
ART	1835	26	က		,	-	က	'			-	ÇŞ	က	23	38
H QU	1834	62	7		•	4	15	•	•	# .	-	က	ಣ	7	44
FOURTH QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	02	1		•	œ	7	•		٠ -	-	9	-	ಸಾ	33
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	1831	92	•		•	13	જ	•		3 10	•	-	٠	17	40
	1830	229	દર		•	34	9	•	• •	0 9	65	9	1	74	142
7	1829	239	က	י פי	1	48	9	•		16	· es	20	'	24	127
		907	25		•	74	204	જ	• 8	20 20	20	43	9	304	902
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	'		' '	1	•	•	•	•	• •	•	•	•	•	
	1837	· ·		' '	•		•	•	•				٠	•	<u>                                     </u>
J.B.	1836	•	'	• •	'	•	•	'	<u>.</u>	• •	'	•	•	<u>.</u>	
THIRD QUARTER	1835	99	-	• •		4	15	-		# •	c3	4	က	4	44
ou.	1834	45	•		•	65	es	-	•		•	<b>cs</b>	•	75	98
HIRD	1833	7.5	~		'	-	31	1		. –	_	Ξ	cs	-	9
H	1832	92	4	1 1	•	1	48	•		• •	'	20	_	_	29
	1831	224	4	' '	•	6	09		• •	9	_	7	<u>'</u>	94	182
	183(	224	•			7	35		. 1	. 4		4	1.	109	165
		203	က		<u>.</u>	51	12	*	. 0	o		9		73	991
	Years .	Mean strength .	Intermittent fever -		Typhus "	tory organs  Diseases of the digestive	organs Diseases of the brain and	nervous system -	Dropsies	Venereal "	Ulcers and abscesses -	Wounds and injuries -	Ebriety -	All other diseases -	Total

Under the head of diseases of the respiratory system are included 358 catarrh, 2 pneumonia, 12 pleurisy, and 9 phthisis pulmonalis; under the class of digestive organs, 258 diarrhæa and dysentery, and 37 cholic and cholera; under the head of brain and nervous system, 2 epilepsy, and 2 mania a potu; and under that of venereal affections, 95

gonorrhea and 91 syphilis.

The total of deaths in the harbor of New York, including Forts Columbus and Hamilton, according to the Adjutant General's returns, is 35, and as the mean strength for the same period is 1,444, the annual mortality is  $2\frac{1}{10}$  per cent. Of these, 26 are reported in the medical returns, (15 at Fort Columbus and 11 at Fort Hamilton,) viz. 9 epidemic cholera, 5 phthisis pulmonalis, 1 variola, 1 paralysis, 1 sudden, 1 suicide, 2 casualties, and 6 from causes not designated. Excluding the cases of cholera, casualties, and of suicide, the ratio of mortality is about 1 per cent. As the post returns include New York harbor in the aggregate, it has been found almost impracticable to determine the precise strength of each post.

That the position is salubrious is, however, plainly manifest. "Remittent and intermittent fevers," says Assistant Surgeon Russell, "are of rare occurrence, and never fairly attributable to this station. I have never known a case of either which may be said to have originated

here."

The relative agency of the seasons in the production of disease in general is shown in the following abstract—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.		
8 first quarters - 7 second " - 7 third " - 7 fourth " -	1,081 998 907 806	457 642 706 463	423 643 779 574		
Annual ratio -	948	2,268	2,393		

It thus appears that every man, on an average, has been reported sick

once in every five months.

There are two other posts in the harbor of New York, which have from time to time been occupied; but the reports are not sufficiently numerous to authorize the usual tabular arrangement. Fort Wood is situated on Bedlow's Island, which contains an area of about seven acres. It is upwards of two miles from the city of New York, and a mile and a half from the shores of New Jersey and of Long Island. The fort occupies the most elevated part of the island, which is about 30 feet above high water-mark. It is old and in a state of dilapidation. The hospital accommodations are tolerably good; but the building is so located, that it is liable to have its lower floors inundated by extraordi-

nary high tides. The mean annual quantity of rain, on an average of four years, is 54.43 inches. This island of late years has been a depot for the majority of the recruits of the whole army. This post has always been remarkably salubrious—fevers of malarial origin, except cases which arose from causes operating in other localities, are unknown. Whilst intermittent and remittent fevers have prevailed to a great extent within a few miles, on Long and Staten Islands, as in the year 1828,

this station has always maintained its healthfulness.

The other post is Fort Hamilton, situated on the Narrows, at Long Island, about seven miles from the city of New York. Contrary to the results given by the other posts of this class, the ratio of malarial diseases is found to be high. It is a remarkable fact that the laborers employed in 1828 in the erection of this post—a locality which had been previously exempt from the effects of malaria—suffered greatly from intermittent and remittent fevers. The elevated coast of Long Island, in the vicinity of the Narrows, where a case of intermitting fever was unknown in the memory of the oldest inhabitant, became so rife with intermittent and remittent fever as to drive the inhabitants from their possessions. The former disease is still very prevalent at Fort Hamilton. In the third quarter of 1834, in a strength of 200, 100 cases are reported; and in the third quarter of 1835, in a strength of 150, 147 cases are reported.

Having finished the examination of the series of posts on our northern Atlantic coast, constituting the second class, a general view of the results obtained will now be presented conformably to the plan adopted

in the preceding class.

The following table exhibits the mortality of each post and the relative degree of sickness—

TABLE exhibiting the mortality of each post, and the relative degree of sickness.

	Mean aggregate strength.	Deaths per Adjutant General's returns.	Deaths per medical returns.	Total of cases reported.	Ratio per 1,000 of mean strength, under treatment annually.
Fort Sullivan	432	17	17	868	2,009
" Preble	376	11	6	576	1,532
" Constitution	390	7	6 5	320	821
" Independence -	533	13	7	1,536	2,882
" Wolcott	380	5	3	577	1,519
" Trumbull	604	. 13	7	859	1,422
" Columbus	948	18	9	2,268	2,393
Aggregate	3,663	84	54	7,004	- 1
Ratio per 1,000 -	<u>.</u>	20*	15	-	1,912

<sup>\*</sup> This result is based on an aggregate mean strength of 4,279.

The annual ratio of mortality, according to the medical reports, is  $1\frac{5}{10}$ per cent., and, according to the Adjutant General's returns, 2 per cent. As in the preceding class, the deaths from epidemic cholera (four at Fort Columbus) have been excluded, and in the medical returns, such deaths also as arose from suicide and drowning. As the ratio per 1,000 of mean strength under treatment is 1,915, it follows that each man, on an average, has been reported sick once in every six months. Although the extent of sickness, as indicated by the number admitted on the sick list, is a little less than in the region of the lakes, yet the mortality is about 50 per cent. higher. In looking over the details of each post, the most striking fact is, the low ratio of those that die from what may be regarded as natural causes. Perhaps four-fifths of the deaths are reported under the names of epilepsy, apoplexy, mania a potu, phthisis pulmonalis, atrophia, etc., with the remark to each case that it arose from the abuse of spirituous liquors. It may with truth be said, that nine-tenths of the mortality at the salubrious posts along the coast of New England has its origin in inebriating potations.

In further illustration of the climate of this coast, and of the relative

In further illustration of the climate of this coast, and of the relative agency of the seasons in the causation of abnormal action, the tabular views in reference to certain diseases having a close relation with meteorological phenomena, adopted in the preceding class, will be now con-

tinued.

TABLE exhibiting the relative influence of the

DISEASES.	Fort Sullivan.	Fort Preble.	Fort Constitu-	Fort Independence.	Fort Wolcott.	Fort Trumbull.	Fort Columbus.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
INTERMITTENT FEVER.										
771								_	4010	
First quarter	3	-	-	3	3	_	3	8	4018	2
Second " Third "	2	4	1	4	-	9	36 25	53 41	3599 3662	15 11
Fourth "	2	-	1	7	1		19	29	3377	9
routin				<u> </u>			19	29	3311	
Annual ratio -	7	4	1	16	4	16	83	131	3663	36
REMITTENT FEVER.										
First quarter	2	9	_	_	_	1	2	14	4018	3
Second "	8	20	_	1	_	Ξ,	2	31	3599	9
Third "	5	18	_	1	1	3	_	28	3662	8
Fourth "	2	15	-	-	-	-	4	21	3377	6
Annual ratio -	17	62	-	2	1	4	8	94	3663	26
SYNOCHAL FEVER.										
First quarter	5	6	1	21	9	5	2	49	4018	12
Second "	1	2	ī	29	9	4	3	49	3599	14
Third "	2	_	_	16	2	3	_	23	3662	6
Fourth "	8	1	-	14	9	5	-	37	3377	11
Annual ratio -	16	9	2	80	29	17	5	158	3663	43
TYPHUS FEVER.	<u> </u>			<del> </del>			_			
TIPHUS PEVEM.										
First quarter	-	-	-	-	-	-	-	-	4018	-
Second "	1	1	4	1	-	-	-	7	3599	2
Third "	4	3	-	1	-	-	-	8	3662	2
Fourth "	_	1	2	1	_			4	3377	1
Annual ratio -	5	5	6	3	_	-	-	19	3663	5
DIARRHŒA AND DYSEN- TERY.										
First quarter	2	2	-	22	4	10	16	56	4018	14
Second "	2	2	_	36	11	8	35	94	3599	26
Third "	18	31	6	101	40	29	172	397	3662	108
Fourth "	8	_	1	13	9	9	35	75	3377	22
Annual ratio -	30	35	7	172	64	56	258	622	3663	170

seasons in the production of morbid action, &c.

DISEASES.	Fort Sullivan.	Fort Preble.	Fort Constitu-	Fort Independence.	Fort Wolcott.	Fort Trumbull.	Fort Columbus.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
CATARRH AND INFLU- ENZA.										
First quarter Second " Third " Fourth "	30 23 11 38	17 6 5 21	3 1 - 26	14 5 8 6	40 11 4 38	36 15 21 23	92 93 69 104	218 149 110 250	4018 3599 3662 3377	63 49 36 85
Annual ratio -	102	49	30	33	93	95	358	727	3663	233
PNEUMONIA.									,	
First quarter Second " Third " Fourth "	7 1 2 14	3 3 2 4	3 - 3 1	85 22 31 84	4 1 2 10	2 1 2 1	2	21 6 11 30	4018 3599 3662 3377	6 2 3 10
Annual ratio -	24	12	7	222	17	6	2	68	3663	22
PLEURITIS.										
First quarter Second "	6 7 5 9	8 5 1 4	- 4 - -	10 19 7 3	5	6 3 3 4	- 4 4 4	20 28 13 21	4018 3599 3662 3377	6 9 4 7
Annual ratio -	27	18	4	39	5	16	12	82	3663	26
PHTHISIS PULMONALIS.								ė.		
First quarter Second " Third " Fourth "	2 - - 1	2 2 3	1 1	1 3 3 1	- 1 -	1 2 3 2	2 5 - 2	6 9 6 9	4018 3599 3662 3377	2 3 2 3
Annual ratio -	3	7	2	8	1	8	9	30	3663	9
RHEUMATISM.										
First quarter Second "	12 18 14 20	11 8 12 12	4 6 5 3	25 27 36 25	9 7 6 7	15 11 9 11	20 24 23 23	96 101 105 101	4018 3599 3662 3377	24 28 29 30
Annual ratio -	64	43	18	113	29	46	90	403	3663	110

As this class of posts is characterized by climatic features analogous to the preceding one, so it is found that the laws in relation to pulmonary diseases are similar. The ratios of catarrhal affections in the first and fourth quarters, are respectively 63 and 85, and in the second and third, 49 and 36. Taking the average of pleuritis and pneumonia, the influence of the seasons is equally manifest, the ratios of the four quarters being respectively 12, 11, 7, and 16. Among the diseases reported under the head of phthisis pulmonalis it is not found, either in this or the preceding class, that the seasons exert any control as respects the

number of cases registered.

In comparing the northern Atlantic coast with the region of the lakes, it is found that the ratio of intermittent fever stands as 36 to 193. However striking this contrast may appear, it will be found that the former average is far too high, inasmuch as most of the cases occurred among troops brought from malarial regions. At Fort Columbus, for example, at which post about two-thirds of the cases are reported, it is asserted, by Assistant Surgeon J. P. Russell, that he has never known a case to originate. It may be safely averred that along the coast of New England intermittent fever is unknown. In regard to remittent and typhus fever, there is little difference exhibited in the ratios of these respective regions. The average of synochal fever is more than twice as high on the ocean as on the lakes, whilst the ratio of diarrhea and dysentery is 50 per cent. lower.

Compared with the region of the lakes, it is seen that the ratio of pulmonary diseases is somewhat lower on the Atlantic coast. This difference arises wholly from the comparative prevalence of catarrh and influenza; for, if the results of Fort Independence, which are contrary to the general laws of this class, are excluded, the mean ratio of pleuritis, pneumonia, and phthisis pulmonalis, is the same as in the preceding

class.

# III. THE INTERIOR POSTS, REMOTE FROM LARGE BODIES OF WATER.

This class embraces those stations of the northern division which are remote from the Atlantic ocean as well as inland seas. Compared with the two preceding, it is characterized by great extremes of temperature. by seasons strongly contrasted, and a corresponding dryness of the at-The seasons follow each other in constant and rapid succession; summer succeeds winter so rapidly that there is scarcely any spring; and the phenomena of vegetation are developed with remarkable suddenness. The prevailing weather is fair, notwithstanding the annual quantity of rain is much greater at some of these posts than at those of the opposite localities; for in the latter the rain, though falling more frequently, descends in slighter showers. The climate of this class of posts, excepting the most southern ones, is distinguished for the extreme severity of winter. From November to May, cold weather prevails, the ground being generally covered with snow to the depth of 3 or 4 feet. The general range of the thermometer is from the freezing point to 30° below zero. The summers are equally remarkable for extremes of

temperature. During June, July, and August, the heat is often as oppressive as in Florida, the mercury sometimes rising to 100° of fahrenheit in the shade. This class embraces the following posts: Hancock Barracks, West Point, Forts Snelling, Winnebago, Crawford, Armstrong, and Leavenworth.

# HANCOCK BARRACKS.

# LATITUDE 46° 5' N., LONGITUDE 67° 40' W.

Hancock Barracks, according to a topographical description furnished by Assistant Surgeon Sprague, is situated in the town of Houlton, Maine. It is distant from the ocean 156 miles, and from the bay of Fundy 180 miles. The surrounding country presents an undulating aspect. The position seems to the eye to be circumscribed by a range of hills, intersected at two points by the passage of the Meduxnikrag, a small rapid stream which runs through the town half a mile from the fort. In the direction of this river lies a great body of low lands, covered with a dense forest, and chequered with many farms in every stage of improvement. The soil is rather productive. As the fort occupies an elevated

position, the drainage is complete.

The season of summer is short, and as frosts frequently occur before its close, the destruction of vegetation is not unusual. In the winter, snow falls to a great depth and lies upon the ground during the whole season. The seasons pass rapidly into each other. On the opening of spring, vegetation is developed with remarkable suddenness. Summer succeeds with a rapid pace; and as the thermometer in winter sinks 30° below zero, so now it may rise to 96° in the shade. The extremes at this post are much greater than in the peninsula of Nova Scotia, owing to the circumstance that the latter has not only an insular climate, but is intersected by lakes and bays. The annual quantity of rain, on an average of three years, is 36.92 inches.

The following abstract comprises the diseases reported in ten years-

ABSTRACT exhibiting a condensed view of the principal diseases at Hancock Barracks, for a period of ten years.

		106 1560	03	· 673	16	٠	127	143	14	6	88	2	55	136	56	88	728
	1838	106		,	લ્ય	•	122	10	•	,	G	1	4	9	•	જ	38
	1837	97		,	က	1	12	24	Ç	1	9	8	6	2		က	99
ER.	1836	87		,	લ્ય	٠	4	14	•	•	co	•	-	11	,	_	36
ART	1835	177		•	က	•	œ	23	•	•	9	S	•	œ	00	6	29
) QU	1834	182	-	_		•	œ	6	က	,	6	_	12	18	11	10	83
SECOND QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	195	,	જ	,	•	œ	20	•	•	α		II	12	•	9	89
SE(	1832	173		•	•	١	9	16	-	•	17	•	10	14	٠	6	73
	1831	151	<u> </u>	•	٠	'	13	-	4	C1	ro	•	_	15	6	13	63
	1830	195		١	٠	٠	33	Ξ	ຄ	•	10	,	1	19	19	11	106
	1829	197	-	1	5	•	23	12		٠	20	•	7	88	6	19	128
		1671	જ	5	7	٠	244	114	7	લ્ય	47	4	43	155	54	115	799
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	86		•	<b>—</b>	•	13	4		•	•		9	6	•	લ્શ	35
	1837	120	1	١	က	•	15	14	-		જ	1	~	16	•	Π	7.0
굨	1836	130		٠	_	٠	œ	90	•	•	က	•	9	Π	1	•	37
RTE	1835	185	,	_		٠	13	10	65	٠	60	,	_	17	က	7	58
QUA	1834	166	, 1	,	٠		13	6	-	•	4	•	13	11	34	က	88
FIRST QUARTER.	1833	205	1	•	_	•	13	17	•	•	14	•	9	82	1	6	77
FI	1832	182	•	4	•	•	43	15	1	٠	ಣ	•	•	<b>o</b> o	4	01	87
	1831	169	•	•		•	46	က	١	_	9	es	က	33	11	13	109
	1830	209	1		•	'	31	10	•	•	9	1	<del></del>	23	ı	22	86
	1829	207	65		•	•	20	24	က	•	y -	_	•	13	લ્ય	33	140
	ø	•	•	'		1	rato-	24116	and	•	t so	•	1		•	•	'
	•	•	ver -			'	respi	ng	tem -	•	ection	tions	cesses	njurie	٠	ses -	'
	,	ength	ent fe	t feve	l fever	ever	or the	10 10	or the	•	ic affe	affec	ıd abs	and i	•	disea	_
	Years -	Mean strength	Intermittent fever	Remittent fever	Synochal fever	Typhus fever	ry organs -	organs	nervous system -	Dropsies	Rheumatic affections	Venereal affections	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases -	Total
	Ye	Me	Int	Kel	S	1 5	ı içi		1	Dr	Rh	Ve	<u> </u>	<b>&gt;</b> i	ם -	A	

1	1	1672	<sub>00</sub>	-	જ		150	153		× ~	50	3 =	49	17.	37	97	744
	38	135 16	<u> </u> က		-	•	35	37		n -	- K		٠.				111
	37 18	<del> </del>			_	_	- 3					- 6:					<del></del>
	9 188	92	'		_			_=		<u>'</u>					_		45
ER.	183	98	•		•	'	7	12	!	•		'	25	10	_	_	32
ART	1835	202	'	•	•	•	10	33	}	•	, rc	•	9	23	•	4	81
QU.	1834	196		•	•	•	53	α	-	-	, rc	•	63	24	7	က	113
FOURTH QUARTER.	1833	173		•	•	•	•	6	•	•	. 1	٠,	œ	15	15	16	63
FOL	1832	219		-	•	•	ro	14	: -	_	- 2	6.01	12	21	•	17	85
	1831	188		•	•	•	14	ي	>	•	٠ ﴿	•	es	10	4	12	55
	1830	186		•		•	12	=	-	-	. 0	· 63	63	24	00	12	18
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	195		•	•	•	ro	6	- 6	.4	. 00	•	6	18	က	23	72
		1630	m	9	10	•	83	247	91	2	56	2	48	47	29	155	845
	8838	109		જ	•	•	16	56		٠,		C\$	2	œ	•	8	64 8
	1837	68	•	•	_	•		19		•	63		_	11	•	7	36
2	836	79		,	•	•	7	20			9	•	65	က	,	4	42
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	204			•	۰	6	51	-	٠.	10	,	7	50	•	15	113
QUA	1834	506	က	_		•	7	 88	c	١ ١	ro	-	7	22	9	12	104
IRD	833	180			•		က	10			9	_	15	18	12	37	102
ТН	832	185			က	•	2	41	-	٠,	00	•	_	14	1	9	81
	1831	195	,		9	•	2	13	1	- ,	9	-	က	12	6	24	98
	1830	197	•	•	•	•	6	00		. ,	2	65	_	15	16	25	18
	1829	186	,	တ	•	•	19	21		۰ ،	œ	•	4	77	24	53	136
	•	•	•	•	•	•	ģ '	ive -	pu		•	•	•	•	•	•	•
		,				, .	spira -	igest	ain a		suo	SI	ses	nies			
	,	th	fever	ver	'er	ц,	he re	the d	he br	1000	ffecti	ction	psces	l inju		eases	
		reng	tent	nt fe	al fev	feve	s of t	s of 1	s of t		tic a	l affe	nd a	s and		r dis	Total
	Years -	Mean strength	Intermittent fever	Remittent fever	Synochal fever	Typhus fever	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and	Dronsies	Rheumatic affections	Venereal affections	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases	Ĺ

Under the class of diseases of the respiratory organs are comprised 437 catarrh, 39 pneumonia, 83 pleuritis, and 9 phthisis pulmonalis; under the head of digestive organs, 264 diarrhæa and dysentery, 96 cholic and cholera, and 12 hepatitis; under the class of brain and nervous system, 13 epilepsy, and 7 mania a potu; and under that of venereal

affections, 12 gonorrhea, and 17 syphilis.

The total of deaths, according to the Adjutant General's returns, is 17; the annual ratio of mortality being one per cent. Of these, 10 are reported in the medical returns, viz. 4 phthisis pulmonalis, 1 pneumonia, 1 hæmoptysis, 1 hepatic abscess, 2 from causes not designated, and 1 frozen, making, excluding the last, a mortality of about  $\frac{1}{10}$  per cent. Two of the cases of phthisis were confirmed drunkards, and the frozen man lay all night in a snow bank intoxicated.

This station presents a very salubrious locality. As there is no marsh in the vicinity, and the current of streams is rapid, there are no diseases of malarial origin. The average of diarrhœa and dysentery is higher, however, than might have been a priori supposed. The vice of intem-

perance is the most prolific source of disease and death.

The relative agency of the seasons, in the production of disease in general, is shown in the following abstract—

TABLE showing the relative agency of the seasons in the production of disease in general.

Seasons,	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
10 first quarters 10 second " 10 third " 10 fourth "	1,671 1,560 1,630 1,672	799 728 845 744	478 466 518 445
Annual ratio -	1,633	3,116	1,908

Consequently every man, on an average, has been reported sick once in upwards of every six months.

## WEST POINT.

LATITUDE 41° 23' 33", LONGITUDE 73° 51' 15".

Situated on the west bank of the Hudson, about midway in that part of the river called the Highlands, it is 50 miles from the ocean, and 170 from Lake Champlain. The public buildings are on a plain about a mile square, elevated 157 feet above the river, having in its rear a range of hills varying in height from 600 to 1400 feet. On each side of the plain there are ravines which serve to carry off the torrents of water which descend from the adjacent hills after heavy rains or spring freshets, a circumstance aided by the gravelly nature of the soil and the continuous slope presented on every side. The nearest marshy ground is on the opposite side of the river, about a mile distant.

As the meteorological data of this post, as well as the preceding one, were used in the "Meteorological Register" by way of illustration, it is sufficient to make the reference. The annual quantity of rain, on an

average of four years, is 48.70 inches.

The hospital and barrack accommodations are of the best kind.

The diseases reported in the 10 years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at West Point, for a period of ten years.

		3543	24	122		989	629	1074	187	25	111		282	4042
	1838	365	•	-14	•	7.1	22	94	14	œ	15		41	379
	1837	332		. ന	•	49	27	78	19	4	12	; ,	22	296
3R.	1836	344	•	• m	•	43	101	121	31	က	36		7.0	455
ARTI	1835	381		2 63	•	œ	56	35	. 23	_	8 0		38	199
SECOND QUARTER	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	370	es.	· =	•	41	29	104	. 6	က	69	3 •	35	344
OND	1833	351		10	•	85	44	51	- 22	લ્ય	16	3 =	31	332
SEC	1832	343	01	<b>⊣</b> თ	•	23	49	22	25	က	. 89	3 .	94	375
	1831	362		16		111	96	230	35	•	2 0	3 1	115	692
	1830	354		13		117	88	183	ە. ،	•	50	3 •		206
	1829	341	12	17		109	104	106	10.	-	8 6	,	65	464
		3631	13	124	•	928	712	941	1771	21	87		535	3834
	8838	393			ı	128	51	77	16	6	2 2		51	372
	1837	338		19		67	65	85	37	•	1 66		88	382
2	1836	353		. 9		49	65	102	• =	9	35	} •	25	308
QUARTER.	1835	389		46	•	33	99	27		,	9.4	•	31	223
QUA	1834	368		10		140	92	104	- 63	9	2 50 2 50	; •	78	578
FIRST	1833	364	લ્ર	. ∞	•	20	31	30	10	•	94	; •	48	189
FI	1832 1833 1834 1835 1836 1837 1838	353	-	16		61	143	145	13	•	9 6	3 1	54	491
	1829 1830 1831	371	က	. 13		111	83	186	- 14	•	8 6	3 .	20	518
	1830	354	·	. ro		117	39	106	٠.۵	•	9 6	2 1	47	347
	1829	348	2-0	m —	•	150	103	83	- 8	•	13		43	426
	•	•	•				stive	and .		٠		•	•	1
	•	•	ver			} · ;	e dige	em	- ections	"	cesses	ding.	ses	١.
	•	ength	ent fe	. د	of th	gans	ot th	or tne s syst	ic aff		d abs	, and .	disea	1
	Years -	Mean strength	Intermittent fever	Kemittent Synochal	Typhus " Diseases of the resuirs.	tory organs	Organs	Diseases of the brain and nervous system	Dropsies Rheumatic affections	Venereal	Ulcers and abscesses	Ehriotac	All other diseases	Total
	Ye	Me	Inte	Syn	Ty]			an .	N R M	Vel	Ule	F.h.	All	

		3865	38	74	265	702	837	126	35	$\frac{101}{329}$	999	1088
	1838	402 3	1 . 4 !	ဂ ,	69 1	49	49	. 6	ေ	43	40	273
	1837	416	1 11	۱ ۵	96	78	118	18	4	25	- 48	448
ER.	1836	365	10	٠,	134	73	100	19	က	- 67	- 67	429
FOURTH QUARTER	829 1830 1831 1832 1833 1834 1835 1836 1837	373	65 .	c -	43	37	46	. 10	10	38	- 28	290
r QU	1834	397		25 1	265	27	34	. !~		34	48	423
JRTE	1833	373	15		36	35	59	29	4	eg	52	256
FOI	1832	381	تن . ·	4 -	30	7.5	56	10	•	10 25	- 22	207
	1831	390	10	91	246	176	132	16	10	30	- 64	200
	1830	390	6	02 -	237	85	123	٠ ٠٠	. 1	30	96	610
	1829	378		۱ د	119	29	150		• 9	13	71	452
		3898	98	25.52	611	1227	936	193	7.4	250 613	727	4840
	1838	398	4 .	ñ .	36	72	2.2		10	43 118	51	437
	1837	402	₩,0	, n	22	125	119	- 92	6	25 34	171	571
23	1836	357	οż . <u>.</u>	22 .	18	100	901	. 23	13	80	77	497
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	376	65 1	1	6	61	30		7	35	47	264
QUA	1834	384	cs . 8	1 20	44	169	7.8	25	4	27	7.	523
IRD	1833	385	ω,	0 -	21	97.	80	30	16	2.5	42	409
TE	1832	400	65 1 6	٥,	53	187	39	. ∞	ر ت	36	46	384
	1831	381		4.	83	109	162	- 92		94	47	545
	1830	395	ro . ;	1-	808	170	191	- 77		42	7.1	693
	1829	420	01 80	00 1	111	137	84	. 23		27	104	517
	•	•			stive	and .	•	1 1	•			•
-	٥	4	ver "	Typhus " Diseases of the resuirate.	ry organs Diseases of the digestive	organs Diseases of the brain and	em,	Rheumatic affections	"	Wounds and injuries	. ses	•
	4	ength	ent fe	ոք քիջ	ans of the	of the	s syst	ic affe		and in	diseases	•
	Years -	Mean strength	Intermittent fever Remittent "	Typhus Diseases	ry organs	organs seases	nervous system	Propsies Rheumati	Venereal	ers ar	Ebriety All other	Total
1	Xeg	Me	Int	S.F. E	Dis	Dist	-	Z Z	Ver	A CIC	All	

Under the class of diseases of the respiratory organs are comprised 3,073 catarrh and influenza, 76 pneumonia, 34 pleuritis, and 7 phthisis pulmonalis; under the head of diseases of the digestive organs, 1,023 diarrhæa and dysentery, and 1,445 cholic and cholera; and under the

class of venereal affections, 129 gonorrhea, and 26 syphilis.

The total of deaths, according to the post returns, is 13, viz: 3 officers, 2 professors, 4 cadets, 1 ordnance storekeeper, and 3 soldiers, the annual ratio of mortality being a fraction upwards of  $\frac{3}{10}$  per cent. Exclusive of these, 6 cadets died in different parts of the United States, perhaps all of them on sick leave. Of the former, 9 are reported in the medical returns, viz: 3 phthisis pulmonalis, 1 sudden rupture of an abscess in the lungs, (a teacher of drawing who was treating his own case by means of animal magnetism,) 1 scarlatina, 2 continued fever, 1 typhus and 1 animal magnetism,)

phus, and I wound of the brain.

Although it will be seen that the average of cases treated is higher than at any other station, yet an examination of the above abstract, in connexion with the ratio of mortality, warrants the opinion that this post holds a place among the first in point of salubrity. It is remarked by Surgeon W. V. Wheaton, who has been stationed here 12 years, that the locality is singularly exempt from all local causes of disease, and that among 800 persons for weeks together, there is often no one seriously To estimate properly the high ratio of disease, compared with the low mortality, it must be borne in mind that this command, with the exception of a detachment of enlisted men never exceeding 50, is composed of cadets, and that the simple circumstance of being registered on the hospital books affords respite from all mental and bodily labor. the 16,804 cases reported, the majority consists of such complaints as headache, toothache, cough, pain in the chest, and sore throat. Of headache alone there are 3,788 cases registered; and as this affection, in default of a better nosological arrangement, has been placed under the head of brain and nervous system, it appears that there are but five other cases in the same class. Of the 482 cases of synochal fever, about 200 are reported under the name of ephemeral, and nearly all the rest as in-Several diseases have, at certain periods, assumed an endemic character. In the first quarter of 1835, there are 46 cases of cynanche tonsillaris reported; and in the first quarter of 1837, 59 cases of cynanche parotidea. In the second quarter of 1832, the sick report exhibits 30 cases of measles confined to the cadets and soldiers. gards the influence of age on mortality, it has been ascertained, that at the period of life between the age of 10 and 15 the ratio is lowest, and next in the order of increase comes the interval between 15 and 20. Cadets belong to the latter class, of which the annual ratio of mortality, per 1,000 is, in England 7,5, in Belgium 6,5, and in Sweeden 7. Now as four cadets died at the academy, one death being the result of a wound, and six when on leave, the total arising from disease, admitting that all the latter may be fairly ascribed to causes operating at the post, may be set down as nine; and assuming the aggregate mean strength of cadets to be 3,234, that is, deducting 50 annually for officers and soldiers,

the ratio is only  $2_{10}$  per 1,000. As contrasted with civil life, the result is, therefore, highly favorable to the regulations of this institution.

The relative agency of the seasons in the causation of disease in gen-

eral is shown in the following table-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
10 first quarters - 10 second " - 10 third " - 10 fourth " -	3,631 3,543 3,898 3,865	3,834 4,042 4,840 4,088	1,056 1,141 1,242 1,058
Annual ratio -	3,734	16,804	4,500

Consequently every one has been, on an average, reported sick once in every 23 months—the highest ratio yet presented.

# FORT SNELLING.

# LATITUDE 44° 53' N., LONGITUDE 93° 1' W.

Fort Snelling, situated in the angle formed by the confluence of the St. Peter's and Mississippi, is elevated 94 feet above these waters, and about 820 feet above the level of the ocean. The St. Peter's, at its mouth, is 150 yards wide and 16 feet deep; and the Mississippi, at this point, is about 400 yards wide, but is much less deep than the former. The banks of the latter, up to the falls of St. Anthony, a distance of eight miles, are about 200 feet high, the upper strata of which consist of limestone, and the lower of sandstone. Beyond the falls the banks are less high, and the immediate valley of the river becomes more extended. The St. Peter's, which has its source about 500 miles from this point, courses through a valley, varying in breadth from one to three miles, which is marshy, owing to the inundation of the river. The surface of the surrounding country presents an undulating prairie, studded here and there with "islands" of timber. Large lakes, plentifully supplied with fish, are occasionally found. The soil, although sandy, is productive. These facts have been furnished by Assistant Surgeon John Emerson.

As the data of this post have been constantly used for the purpose of elucidating the various systems of climate, the necessity of any detail now is wholly superseded. The mean annual quantity of rain, on an average of three years, is 30.32 inches.

The diseases reported in ten years are comprised in the following ab-

stract-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Snelling, for a period of ten years.

		110 1515	13	4	œ	ı	315	178	25	3 -	127	18	20	131	_	142	1044
	1838	110	•	•	•	•	83				63	₹	,	Z,	٠	4	18
	1837	181	•		cs.	•	92	56	=	: •	7	63	-	20	٠	Ξ	157
ER.	1836	197	3		•	•	51	26	Q	0	255	2	20	22	•	14	163
SECOND QUARTER.	829 1830 1831 1832 1833 1834 1835 1836 1837 1838	154	y 1	•		•	14	39	00	Ş •	52	•	9	13	•	20	165
) QU	1834	147	4	٠	_	•	47	24	7	# .	16	•	6	27	•	25	167
CONI	1833	122			•		18	22	c	۱ ه	5	63	6	15	•	12	85
SE	1832	150	1	c3	•	•	29	13	-	٠,	6	•	rC	Ξ	•	4	7.5
	1831	145	က	1	,		38	13			10	•	•	•	1	34	66
	1830	139	•	•	٠		27	2			1	C5	•	7	•	14	56
	1829	170	1	•	₹'	•	13	6			•	က	15	Ξ	ı	4	59
		1547	က	'	2	•	234	105	9	25	108	11	46	126	9	971	800
	1838	78	,	•	•	•	ro	provide		•	4	က	t	4	,	4	23.1
	1837	212		•	-	٠	53	11	c	.3	. 4	_	લ્ર	122	,	7	93
يي	1836	166		•	•	P,	48	13	ì		16	•	9	10		18	119
FIRST QUARTER.	1835	165		•	,	•	34	13	c	2	16		7	19	. '	24	132
QUA	1834	159	-		. 1	8	31	34	-	# 1	83	•	4	29	٠	14	140
ST	1833	134		•		٠	14	4		-	6	•	4	œ		16	99
FII	1832 1833 1834 1835 1836 1837 1838	153		•	,	,	26	4		.3	20		63	4	,	12	02
	1831	150		1	•	•	œ	12		r	10	-	cs.	17	9	7	63
	1830	147		•	1	•	0	-			. 67	600	7	1	•	17	47
-	1829 1830 1831	183	2	'	63	8	9	9		•	. 73	က	12	16	•	7	59
	'	•	•	٠	'	•	tory -	stive .	and	•	•	•	•	•	6	٠	•
		•	er -	- "	,	;	Diseases of the respiratory organs	Diseases of the digestive	Diseases of the brain and	· H	tions	,	Ulcers and abscesses	Wounds and injuries		ses -	.(
		ngth	nt fev	,	"	•	f the 1	of the	of the	syste	c affer		d absc	n bug	•	discas	- Ig
	, in	Mean Strength	Intermittent fever	Remittent	Synochal	hus	seases o	iseases (	sases c	nervous system	Rheumatic affections	Vencreal	ers and	spun	Ehrietas	All other discases	Total
	Ycars	Mean	Inter	Rem	Syn	Typhus	Disc	Disc	Disc	i i	Rhe	Ven	Ulce	Wo	Ehr	All	

1	,	6	91	2	લ્ય		4	0	က	_	4	00	7	_	4	C1	1 62
		1499	_			'	234	100	83		84		37	11		132	763
	1838	189		•	•	٠	4	က	p.	•	2	•	CS.	7	•	12	35
	1837	83		•	•	•	-	•	•	•	•	•	•	લ	•	4	7
ER.	1836	166		લ્ર	•	•	45	10	'	•	6	CS.	_	4	•	17	06
ART	1835	164	•	•	•	• 1	54	18	4	•	16	65	က	10	•	10	117
r Qu	1834	169	က	•	•	1	47	17	9	,	13		cs.	56	•	21	135
FOURTH QUARTER	1833		1	•	-		56	16	7	_	17	_	6	21	•	~	107
FOI	1832	141	. •	•	•	•	14	21	က	,	4		4	9	•	20	73
	1830 1831 1832 1833 1834 1835 1836 1837 1838	152		-	•	•	81	4	લ	•	2	•	c	13	က	20	26
-		153	6	'	-	•	16	2	•	•	~	લ્ર	~	10	-	4	62
	1829	150	အ	લ્ર	•		6	9	-	•	-	-	4	18	•	17	62
		1424	33	24	က	•	202	276	92	٠	73	21	30	111	4	121	927
	1838	192		00		•	37	22	,	٠	œ	-	ς₹	2	•	က	98
	1837	82	H	က	•	'	14	14	•	•	•	C.S	4	_	•	7	46
.H.	1836	132	•	6	•		10	12	65	•	લ્શ		•	•	•	12	47
RTE	1835	149	1		•		6	16	10	•	20	9	7	13	•	18	97
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	150	63	1	•	•	56	18	7	•	2	•	•	18	•	13	94
IIRD	1833	118	•	•	•	•	16	45	က	•	2	લ્ર	4	15	•	14	104
TI	1832	143	•	-	•	•	12	29	Н	•	13	•	œ	15	•	12	91
	1831	156	13	က	•	,	58	53	65	•	~	C.5	4	16	•	14	148
	1830	161	13	•	,	•	20	72	•	•	က	7	•	20	4	14	153
	1829	141	က	'	က	•	က	19	1	•	ō	_	4	00	•	14	61
	•	•	•	•	1	tory	· · ·	- Pue	-	•	1	•	1	•	1	•	•
	•	• 1	er ,	•	•	espira	dieno	hrain	- 11	·	tions	•	sesses	uries	•		•
		ngth	t feve	3 :	3 5	the re	f tho	1 94	nervous system		affec	99	absce	nd in	•	isease	
		Strei	nitten	tent	hal	ses of	sus	ans	snon	les	natic	eal	and	ıds ar	as	her d	Total
0 0	Years	Mean Strength	Intermittent fever	Remittent	Synochal	Jypnus Diseases of the respiratory	Organs - 1	organs	ner	Dropsies	Rheumatic affections	Venereal	Ulcers and abscesses	Wounds and injuries	Ebrietas	All other diseases	1
		1	_	,—, (	-4	. ~	-	. –		-	_	-	_		_	7	

Under the class of diseases of the respiratory organs are comprised 920 catarrh, 9 pneumonia, 52 pleuritis, and 4 phthisis pulmonalis; under the head of diseases of the digestive organs, 321 diarrhœa and dysentery, 200 cholic and cholera, and 4 hepatitis; under the class of brain and nervous system, 20 epilepsy, 11 nyctalopia, and nearly all the rest cephalalgia; and under that of venereal affections, 46 gonorrhœa and 12 syphilis.

The total of deaths, according to the post returns, is 24, the annual ratio of mortality being  $1\frac{e_0}{e_0}$  per cent. Of these 13 are reported in the medical returns, viz: 1 phthisis, 2 remittent fever, 1 meningitis, 2 gunshot wounds, 2 casualties, 1 drowned, 1 suicide, and 3 from causes not designated. Excluding those reported from accidental causes, the aver-

age of mortality is less than 5 per cent.

The diseases of this post require no special comment. As morbid action generally assumes a purely philogistic character, the therapeutic means are correspondingly simple. The relative agency of the seasons in the production of disease in general is shown in the following abstract—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
10 first quarters - 10 second " - 10 third " - 10 fourth " -	1,547 1,515 1,424 1,499	800 1,044 927 763	517 689 651 509
Annual ratio	1,496	3,534	2,362

Every man, on an average, has consequently been reported sick once in about every five months.

### FORT WINNEBAGO.

## LATITUDE 43° 31' N., LONGITUDE 89° 28' W.

This fort is situated on the right bank of Fox river, directly opposite the portage between this river and the Wisconsin, and is elevated about 70 feet above the level of the latter. It is 81 miles west of Lake Michigan, and 112 southwest of Green Bay. Both the Fox and Wisconsin are bordered by extensive marshes, which are occasionally inundated, so that boats pass from one river to the other.

"The formation of these marshes," says Surgeon Foot, "is a subject of much speculation. In cutting through the thick vegetable matter on the surface, from two to four feet thick, you come to a stratum of soft mud, generally a foot or two in thickness. In a few places, however,

70/6

this stratum of mud and water is from eight to ten feet deep. These are knewn by the name of "shaking marshes," and are dangerous to cross with horses. They appear, however, to be filling up from the same

causes that have made the others more solid."

Beneath the mud and water is a stratum of fine silicious sand, which is believed by Dr. Foot to be of animalcular origin. He supposes these marshes to have been originally shallow lakes or lagoons, full of aquatic plants, which were then, as now, covered with myriads of animalculæ, whose shell is pure silex. As these die annually, each one deposites its particle of silex, until, in the process of time, the lagoon becomes filled up, having below a stratum of sand, and above an imperfectly organized soil, formed by the annually decaying vegetation.

"The soil of the upland about this post," says Dr. F., "is a light loam, mixed with silex, lime, and clay. It is what is called a warm soil, and vegetation comes forward earlier than at any place in the same latitude I have ever been stationed at. The mineral productions are very few: secondary limestone and sandstone of recent formation are

the only rocks that I have ever seen."

The annual quantity of rain, on an average of three years, is 31.88 inches.

The following abstract comprises the diseases reported in ten years-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Winnebago, for a period of ten years.

		1505	22	٠	4	_	97	143	٠	۲ ,	35	19	13	78	12	85	517	
	1838	121	က	•	•	•	17	63	-	٠,	9	00	,	11	-	16	98	
	1837	63	-	•	•	•	16	15			_	•	co	10	•	4	20	-
ER.	1836	164		•	•	٠	12	13	•	•	c,s	က	•	9	9	15	57	
ART	1835	188	60	٠	•	-	22	Ξ	- ,		4		10	10	c,s	~	65	
O.O.	1834	215	1	•	•	•	œ	18		•	4	9	7		က	-	49	
SECOND QUARTER.	1833	121	,	1,	•	•	က	14			က	•	¢1	~	•	4	33	
SEC	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	169	•	٠	•	•	63	73		•	_	-	•	9	•	က	18	
	1831	191	12	•	٠	•	4	16		•	9	_	¢4	14		6	62	
	1830	147	•	•	4	•	10	16	•	•	œ	•	•	9	•	14	58	
	1829	97	4	•	•	1	က	12	-	•	•	•	•	7	•	12	39	
		1535	5	9	က		175	88	cr		33	16	50	78	4	91	552	-
	1838	68	-	•	•	•	7	9			-	_	_	~	•	==	35	-
	1832 1833 1834 1835 1836 1837 1838	66	•	•	•	•	30	က	•	•	•	•	-	~	-	_	43	
ngi.	1836	204	ı	•	•	•	16	11		•	4	က	35	9	က	11	98	
RTE	1835	210	•	C.S		•	46	10		•	အ	•	11	13	•	œ	93	
QUA	1834	231	-	C.5	•	•	25	13	-	•	2	-	က	9	•	7	64	
FIRST QUARTER	1833	133		•	•	•	10	13	•	•	¢,	on	•	¢5	•	~	42	
FI	1832	186	•	•	•	•	10	80	•	•	5	_	•	9	•	4	34	
	1831	142	က	•	1	•	. 7	18	દર	1	10	_	<b>cs</b>	14	•	27	84	
	1830	143	•	દર	•	•	12	<b>cs</b>		•	¢5	_	•	9	•	7	32	
	1829 1830 1831	86	•	•	က	•	12	4	•	•	_	٠	'	=	•	œ	39	
	•	•	•	•	•	•	rato-	stive -	and .	•	,	•	•	52	•	•	•	
	•	•	·er -	•	•	•	respi	e dige	brain	•	ctions	ions	cesses	njurie	•	ses •	•	
	•	ength	int fer	fever	fever	ever	of the	of the	of the		ic affe	affect	d abs	and i	•	disea	tal -	
	- 178	Mean Strength	Intermittent fever	Remittent fever	Synochal fever	Typhus fever	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and	Dropsies	Rheumatic affections	Venereal affections	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases	Total	
	Years	Mes	Inte	Ren	Syn	Tyl	Dist	Dia	Dis	Dre	Rhe	Vei	35	W	Ebi	All		

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	8881	105	7	₹ -	'		~	'	. –	'	1 00	· m	11	42
	1837	9.2		٠.	,	œ	ಸ	-1	. –	4	- 67		7	30
SR.	1836	103	-		•	9	6	•		14	- 9	65	9	49
ARTI	1835	215				1.0	11	•	. 2	-	- 20	-	00	99
QU.	1834	214	GR			30	12		00	-	m E	က	4	9/
FOURTH QUARTER.	1833	213	દર		•	88	16	•	. 9		~ cc		ಸ	78
FOU	1829 1830 1831 1832 1833 1834 1835 1836 1837 1	153		es 1	•	10	6	•		83		•	-	25
	1831	188	,		•	10	4	•	. 03		- 4	_1	6	30
	1830	148	6	. –	•	16	12	1	. 03	cs.	12	٠	91	72
	1829	156		# .	1	12	ro			C.S			13	37
		1527	28	5 4		93	326	က	15	37	15 83 83 83 83	11	54	581
	8881	56	ಣ	- ·		9	53		, ,	-	• 67	•	'	29
	1837	89		०२ ।		4	15	•		C?	- 9		က	33
	9881	121		1 . 1		Çŧ	14	- 4	. –	14	7	•	~	46
TER	1835	217	63		•	12	44		. m	દર	- 17	7	14	105
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	210	1	, ∞	1~	10	35	က (	જ	9	4 20	сs	-	74
RD G	1833	186	,		•	œ	18			<del>بن</del> د	ı دد	C.S	4	41
THI	1832	160			•	92	28	•	8	cs .	— تن	٠		64
	1831	193	4	es '	•	10	œ	•		c2 .	7	'	11	40
	1830	160	16	1 05		•	21		. –	Н	14	•	4	59
	1829	156	જ	. 4	•	20	31	٠	٠ <sub>7</sub>	63	15		10	06
		'	•	1 1	- ote	ive	- pur	•	•	٠		١	•	•
					Typhus fever Diseases of the resuirato-	ry organs Diseases of the digestive	organs Diseases of the brain and		ions	ns	Ulcers and abscesses Wounds and injuries		122	
		3th	feve	ver	the r	the	the b	ysten	ffecti	ection	absce d ini	,	sease	
		treng	ttent	al fev	s of	gans	s of	s sn	atic a	મ aff	and a		er dis	Total
	Years -	Mean Strength	Intermittent fever	Remittent fever Synochal fever	Typhus fever Diseases of th	ry organs -	organs seases	nervous system	Rheumatic affections	Venereal affections	Ulcers and abscesses Wounds and injuries	Ebriety	All other diseases	T
	Ye	Me	Int	Sy Sy	L U	, i	Ä		점	Ve	5 ≥	Eb	A	

Under the class of diseases of the respiratory organs are comprised 448 catarrh, 11 pneumonia, 29 pleuritis, and 10 phthisis pulmonalis; under the head of digestive organs, 193 diarrhæa and dysentery, 149 cholic and cholera, and 17 hepatitis; under the class of brain and nervous system, 1 epilepsy and 2 mania a potu; and under that of venereal

affections, 66 gonorrhea, and 33 syphilis.

The total of deaths, according to the post returns, is 20; the annual ratio of mortality being  $1\frac{3}{10}$  per cent. Of these, 14 are reported in the medical returns, viz. 3 phthisis pulmonalis, 1 pleuritis, 2 chronic hepatitis, 1 gastro-enteritis, 1 splenitis, 1 syphilis, 1 ebriety, 1 idiotcy, and 3 from causes not stated, being  $\frac{9}{10}$  per cent. Two of these cases occurred in recruits, who were sick when they arrived; and of the remaining fatal cases, the majority is, as usual, ascribed to the abuse of alcoholic li-

quors.

From a general view of the above facts, it is manifest that this station is highly salubrious. When it is considered that marshes abound in the immediate vicinity of this post, it is surprising that diseases of malarial "I have never thought," says Surgeon Foot, origin are not more rife. "that the marshes about this post produced disease, till last fall, [1838.] Last year the Wisconsin overflowed its banks in the latter part of July, covering all the extensive marshes bordering the Wisconsin and Fox rivers with water for two or three weeks. All plants, except aquatic, This was succeeded by excessively hot and dry weather, were killed. during the month of August and part of September, when we had a number of cases of intermittent and remittent fever, which, I think, were caused by the decomposition of the vegetable matter on the marshes." The results obtained from the statistics of ten years do not, however, warrant the conclusion that these marshes are generally the sources of miasmata in the summer season. It is only when those meteorological causes, which are essential to the production of what is called malaria, are peculiarly favorable, that intermittent or remittent fever prevails.

The annexed abstract presents the relative agency of the seasons in

the etiology of disease in general-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
10 first quarters - 10 second " - 10 third " - 10 fourth " - Annual ratio -	1,535 1,505 1,527 1,571 1,534	552 517 581 495	360 343 380 315

Every man, on an average, is consequently reported sick once in every eight months and a half.

### FORT CRAWFORD.

### LATITUDE 43° 5', LONGITUDE 90° 55' W.

Fort Crawford, situated on the Mississippi, two miles above the mouth of the Wisconsin, is on Prairie du Chien. This prairie, lying in the angle formed by these two rivers, is about 10 miles long and 2 wide, terminating on the east by a range of abrupt hills about 300 feet in height. These bluffs present almost a naked surface, studded with boldly projecting rocks. The fort, which is about 300 yards from the Mississippi, is elevated 70 feet above its level. Directly in front of the fort is a marsh, which extends 5 miles up the river, and about as far down as the mouth of the Wisconsin. This marsh, or slough, which exists only during the low water of the summer and autumnal months, not unfrequently so abounds with putrid vegetable matter as to be extremely offensive. The soil, which is generally fertile, producing wheat, corn, rye, oats, and potatoes, abundantly, consists of a dark loam combined with lime and silex. Lead, iron, and copper, are found at many points; and among the productions of the forest, different varieties of quercus, (oak,) acer, (maple,) betula, (birch,) salix, (willow,) juglans, (walnut,) and carya, (hickory,) stand most prominent.

This post, as regards temperature, differs in no respect from the general character of the class. The annual quantity of rain, on an average

of 3 years, is 29.54 inches.

The diseases reported in ten years are contained in the following table-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Crawford, for a period of ten years.

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	1838	28		•	•	•	9	က	જ	•	-	9	•	2	•	CS.	92
	1837	159	အ	_			92	12	દર	•	1	12	6	က	•	18	93
FER.	1836	224	15	-	•	٠	38	21			14	က	30	20	22	54	193
UAR	1835	225	-	•	•	•	09	19	•	•	6	દર	16	15	25	43	190
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CON	1833	185			•	٠	37	55	භ	•	9	-		21	11	288	162
SE	2881	141	9	•	•	•	17	7			2	_	~	œ		30	75
	1831	211	24	•	•	•	14	31	•	•	13	2	•	6	•	23	119
	1830	188		_	•	٠	23	22	•	•	_	ಣ	_	č?	ro	30	114
	1829	130	1	•	•	•	2	11	'	•	€S	cs.	•	13	•	30	55
		1660	21	•	ĭ	•	316	104	10	•	42	18	89	103	41	263	987
	1838	63				•	00		-	•	9	œ	-	က	•	ro	32
	1837		,	•	•	•		1		٠			110	oda	) I	οN	
<u></u>	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	267	က	'	1	,	54	17	'	'	9	•	19	10	6	2.2	195
FIRST QUARTER.	1835	261	4	•	•	•	77	25	જ	•	~	•	25	13	00	44	204
QUA	1834	250	က	•	-	•	91	21	က	•	က	4	16	6	14	30	195
RST	1833	107		•	•	•	œ	-	_	•	4	•	_	13	દર	7	37
FI	1832	227	5	•	•	•	45	10	က	•	2		•	15	'	40	124
	1831	175	4	•	•	•	12	00	•	'	4	c?	4	18	•	32	84
	1830	199	જ	•	•	•	10	14		•	2	က	83	15	œ	14	73
	1829	111	•	•	•	•	Ξ	œ	•	•	es	•	•	œ	•	14	43
	'	•	'	,	•	•	pira-	•	and -	•	1	•	•	ı s	1	•	,
	•	•	ver -	- 27		. ,,	e resp		brain em -	٠	ctions	"	cesses	njurie		ses	•
	•	ngth	nt fe				of th		of the s syst	•	ic affe		d abs	and i	ı	disea	'
	urs -	Mean strength	Intermittent fever -	Remittent	Synochal	Typhus	Diseases of the respira- tory organs Diseases of the digestive	organs	Diseases of the brain and nervous system -	Dropsies	Rheumatic affections	Venereal	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases-	Total
	Years	Me	Inte	Ren	Syn	Tyl	Dis		Dis	Dro	Rhe	Ver	Ule	W	Ebi	IIV	

	1	1878	125	₹.	-	411	191	_	જ	47	56	83	136	73	205	1290
	838	67 18	∞ <del>-</del>	٠,	-	00	4	•	t	1	4	-	7	•	1	34
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	29	က		•	7	2	1		4	લ	63	10	1	3	38
3R.	1836	182	-		•	33	10	•	•	10	က	9	က	23	œ	97
FOURTH QUARTER.	1835	265	es -	٠.	•	92	16		લ્સ	16	œ	13	20	21	49	224
no 1	1834	270	10	٠,		102	40	•	١	2	લ્ય	43	15	22	18	258
JRTH	1833	239	34	91		101	35	•	1	6	_	12	24	65	22	255
FOL	1832	168		•	•	00	ಣ	•	٠	•	_	က	15	2	4	39
	1831	235	14	•		40	56			•	က	cs.	12	•	64	162
	1830	183	48	•	•	9	12			•		_	<b>CS</b>	•	6	78
	1829	202	4			30	16	•	•		લ્ય		88	•	21	105
-		1885	262	10		177	722	16	•	58	44	92	149	74	309	1948
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	63	10	3		7	18	લ્સ	•	_	13	ಣ	1	•	લ	65
	1837	59	:- C			9	18	,	•	લ	4				4	56
IR.	1836	246	-	•		21	85	•	•	13	2	6	લ	15	35	186
ARTE	1835	211	4 (	25		10	51	•	•	4	က	10	5	17	30	136
THIRD QUARTER.	1834	225	02	2	٠ ،	19	113	٠,	•	10	લ	38	19	56	34	294
HIRD	1833	221	1-	=		6	198	•	•	10	'	65	31	5	<b>∞</b>	281
1	1832	210		-	٠.	38	46	=======================================		2	63	63	34	٠	27	167
1	1831	251	2.			53	128	-	•	9	1	C.S	6	•	102	367
1	1830	199	136	20		22	56		'	ಣ	es.	_	16		37	261
	1826	200	9	•	•	16	39			4	9	5	1	=	30	135
•	Years	Mean strength -	Intermittent fever -	Remittent fever	Synochal fever	Diseases of the respiratory or organs -	Diseases of the digestive organs	Diseases of the brain and	Dunging	Plopsies	Venereal "	Toers and abscesses	Wounds and injuries	Would and injuries	All other diseases -	Total

Under the class of diseases of the respiratory organs are included 1,048 catarrh, 28 pneumonia, 75 pleuritis, and 13 phthisis pulmonalis; under the head of digestive organs, 933 diarrhæa and dysentery, and 195 cholic and cholera; under the class of brain and nervous system, 7 epilepsy, and 20 delirium tremens; and under that of venereal affections,

101 gonorrhæa, and 23 syphilis.

The total of deaths, according to the post returns, is  $\overline{\$4\$}$ , the annual ratio of mortality being  $2\frac{7}{10}$  per cent. Of these, 35 are reported in the medical returns, making, excluding 6 deaths from epidemic cholera, 4 from gun-shot wounds, and 1 from exposure to low temperature,  $1\frac{3}{10}$  per cent. The causes of death, as stated in the medical returns, are as follows: six phthisis pulmonalis, six epidemic cholera, one common cholera, four remittent fever, three dysentery, four gun-shot wounds, two ebriety, two chronic visceral derangement, one sudden, one disease of the heart, one gangrene of the lower extremities from exposure to cold, one casualty, and three from causes not specified. The gun-shot wounds were received in battle in the expedition against Black Hawk. In the third quarter of 1832, there are reported twenty-one cases of gun-shot wounds, received in the action of the 2d of August, on the Mississippi, forty-five miles above this post.

The average of disease at this post is higher than the mean of the stations already examined. When it is considered, however, that those causes regarded as most conducive to the evolution of miasmata exist here abundantly, it seems surprising that fevers of malarial origin are not more rife. Equally remarkable is the fact of the variation in the ratio of these fevers from year to year. Thus, in the third quarter of 1830 there were 154 cases, whilst the same quarter of 1836, with a greater strength, affords but one case. The following table will show the relation between these fevers and meteorological causes at this post—

TABLE showing the relation between fevers and meteorological causes.

					_	
Years.	Mean temperature for July.	Mean temperature for August.	Mean of July and August.	Highest degree.	Amount of rain in July and Au- gust.	Ratio of cases of intermittent and remittent fever per 100 of mean strength.
1829	74.33	73.76	74.09	94	Unknown.	3
1830	81.47	77.07	79.27	94	44	72
1831	76.56	71.93	74.24	98	44	33
1832	74.41	70.09	72.25	94	"	1
1833	78.83	76.58	77.65	98	"	8
1834	80.49	77.55	79.02	98	46	14
1835	73.80	69.62	71.71	94	"	3
1836	73.00	66.66	69.83	· 90	5.50 in:	0 4-10
1837	73.83	70.87	72.35	95	5.48 "	17
1838	78.61	73.90	76.26	97	8.24 "	19
						l

Although the essential causes of intermittent and remittent fever may forever remain involved in obscurity, yet the general fact that the average of these fevers is highest in the third quarter of the year, in every



district of the United States, warrants the conclusion that heat and moisture are requisite to develope the causes. In regard to the operation of these causes, however, there exists this striking difference, that heat acts in proportion to the rise of the mercury, whilst excess of moisture is no less inimical to the evolution of miasmata than its deficiency. This law in reference to atmospheric temperature obtains in the table just given. It is seen that the highest mean temperature of July and August, at Fort Crawford, is in 1830, when the ratio of intermittent and remittent fever in the third quarter is 72 per 100 of mean strength, and that the lowest mean temperature is in 1836, when the average of these fevers is only  $\frac{4}{10}$ . The years 1832 and 1835 are the next lowest both in regard to the mean temperature and the ratio of these fevers. As there are doubtless many modifying causes, the precise influence of elevated temperature cannot be determined in each season.

With the exception of cholera asphyxia, no epidemic has prevailed at this post. In August, 1833, there occurred twenty-three decided cases of cholera, and six deaths, whilst very few wholly escaped its influence. Those cases, in which the premonitory symptoms continued for some time, terminated favorably. In some instances, death ensued in three or four hours after the first attack. For a short time, from forty to fifty were daily reported sick with diarrhæa, and other premonitory symptoms. In the village of Prairie du Chien, twelve or thirteen deaths occurred. It was noticed by Assistant Surgeon R. C. Wood that, in every case there existed a diminution or total suspension of urinary se-

cretion, as was proven by the introduction of the catheter.

The relative agency of the seasons in the production of disease in general is shown in the annexed table—

TABLE exhibiting	the ratio of sickness.
------------------	------------------------

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.		
9 first quarters, 10 second " - 10 third " - 10 fourth " -	1,660 1,749 1,885 1,878	987 1,267 1,948 1,270 5,472	595 724 1,033 676		

Consequently every man, on an average, has been reported sick once in nearly every four months.

# FORT ARMSTRONG.

#### LATITUDE 41° 28', LONGITUDE 90° 33'.

This fort is situated on Rock Island, which lies in the Mississippi, four miles above the mouth of Rock river. It is two miles long, and about four hundred yards wide, being a rich alluvial bottom based on a substratum of limestone. The diseases reported within the ten years are comprised in the following table—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Armstrong, for a period of ten years.

		534	37 16 67 67 67 83 33 33 77 21 21 26 66 33	398
	1838			
	1837			•
ER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	Evacuated	•
SECOND QUARTER.	1835	84		16
o or	1834	52	14. 1 1	13
CON	1833	62	33 55 4 - 23 - 44 - 8	42
SE	1832	51	10 6 6 20 20 20 11 15 15 15 15 15 15 15 15 15 15 15 15 1	74
	1831	95	20 4 4 4 4 7 20 20 20 20 21 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1	130
	1830	65	148 7 8 1 .0 .14 .8	38
	1829	81	3. 113. 61. 13 7 13	48
		999	6 4 3 105 40 3 3 3 14 76 4 3 3	327
	1838	•		•
	1832 1833 1834 1835 1836 1837 1838	•		
H.	1836	94		49
RTE	1835	97	3 8 4	56
QUA	1834	29	1 1 64 64 1 164 1656 175	17
FIRST QUARTER.	1833	28	10 8 1 12 1 4 12	27
E	1832	20	25 25 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	55
	1829 1830 1831	104	119 119 24 4 4 4 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9	59
	1830	102	20 20 10 10 10 12 12 12 14 4 4	59
	1829	74	, et m , et , et , et , et , et , et , e	35
	•	•	rato- stive	'
	'	•	ver - r - r - r - r - r - r - r - r - r -	'
	•	ength	tent ferent ferent fever of the ans - of the system of the	Total -
	Years -	Mean strength	Intermittent fever  Synochal fever  Typhus fever  Diseases of the respirato- ry organs - Diseases of the digestive organs  Diseases of the brain and nervous system - Dropsics - Chematic affections - Wheumatic affections - Cheereal and abscesses - Wounds and abscesses - Wounds and injuries - Ebricty -	T
	Ye	Me	Pint Disk William All D	

		809	118 100 13 2 3 69 69 2 2 2 3 3 8 6 8 6 9 8 6 9 8 6 9 8 6 9 9 9 9 9 9 9	314
	1838	,	111111111	•
	1835 1836 1837 1838	•	1 1 1 1 1 1 1 1 1 1 1 1 1	•
ER.	1836		1111 1 1 11111	•
ART	1835	102	19 10 10 22 2	47
i qu	1834	103	6 1 13 1 2 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	19
FOURTH QUARTER.	1833	73	4	33
FOI	1832 1833 1834	35*	, , , , α , , , , , , , , , , , , , , ,	18
	1831	7.7	1 2 2 2	45
	1829 1830 1831	110	8,1,60,100,100,100,100,100,100,100,100,10	55
	1829	108	$\begin{smallmatrix} 1 & & & & & & & & & & & & & & & & & & $	99
		555	23 23 44 44 44 44 44 44 44 44 44 44 44 44 44	488
	1838	,		
	1832 1833 1834 1835 1836 1837 1838	,		
~	1836		1	,
RTE	1835	101	18.1. 1 2 1.81.088	102
THIRD QUARTER	1834	85	44.1 8 2 1.8.8488	9,2
IIRD	1833	98	4 7 0 6 4 . 4 . 6 . 6	83
TH	1832		No report.	,
	1831	85	o''' r 4 ''4r 40'''	92
	1830 1831	97	20 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	79
1	1829	101	811. 8 61 1.8184.4	57
	,		r respira- ligestive rain and n	1
		gth	t fever - " " " " " " " " " " " " " " " " " "	,
	Years -	Mean strength	Remittent fever - Synochal " - Synochal " - Synochal " - Synochal " - Diseases of the respiratory organs - Diseases of the digestive organs - Organs - Diseases of the brain and nervous system - Dropsies - Helmadic affections - Wounds and injuries - Ebriety - All other diseases	Total
			21	

\* The actual strength was 71, but the troops were at the post only half of the quarter.

Under the class of diseases of the respiratory organs are comprised 209 catarrh, 9 pneumonia, 23 pleuritis, and 3 phthisis pulmonalis; under the head of digestive organs, 208 diarrhea and dysentery, 145 cholic and cholera, and 6 hepatitis; under the class of brain and nervous system, 6 epilepsy, and 3 delirium tremens; and under that of venereal

affections, 22 gonorrhea, and 4 syphilis.

The total of deaths, according to the Adjutant General's returns, is twenty, the annual ratio of mortality being  $3\frac{4}{10}$  per cent. Of these but eight are reported in the medical returns, viz: one mania a potu, one accidental, one frozen, and five from causes not stated. The medical reports from this post are defective in details; and, consequently, no means are afforded of determining the causes of the high mortality given in the post returns. On reference to the abstract exhibiting the diseases reported in ten years, it will be seen that the ratio of intermittent and remittent fever is low, whilst of typhus there is not a single case. In the post returns, seven deaths are reported in September, 1832, which, it is more than probable, arose from epidemic cholera. In the first quarter of 1834 it is noticed that, on the night of the 13th January a man deserted, and when brought back on the 17th, the right foot was mortified as high as the tarsus, and the os-calcis of each extremity was very much injured. On the 18th of March two deserted; and on the following day, both were brought back, one dead and the other torpid.

The relative agency of the seasons in the production of disease in

general is exhibited in the annexed abstract-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
8 first quarters - 7 second " - 6 third " - 7 fourth " -	666 534 555 608	327 398 488 314	491 745 879 516
Annual ratio -	591	1,527	2,584

Hence every man, on an average, has been reported sick once in upwards of every four months and a half.

## FORT LEAVENWORTH.

LATITUDE 39° 20' N., LONGITUDE 95° 05' W.

This post is situated on the right bank of the Missouri river, about 500 miles above its confluence with the Mississippi. As the Missouri here is not more than 300 yards wide, being one of its narrowest points, the water is deep and the current rapid. This mighty river is at times navigable for steamboats 1,750 miles above the fort, and always,

unless obstructed by ice, to its mouth.

The fort stands on a plain elevated about 150 feet above the surface of the river. This plain is the highest point of an undulating prairie, which extends as far south as the eye can reach. The opposite shore is an extensive alluvial bottom, covered with a dense forest of cotton-wood, (populus canadensis.) The margin of the river, north of the fort, presents a similar character; but as the prevailing winds are from the south, the full effects of the exhalations from this miasmatic surface are not experienced.

The soil, which is quite productive, consists of a sandy loam, covered with a rich vegetable deposite, the whole based on a strata of clay and

limestone.

"The forest," says Surgeon Macomb, "abounds in trees valuable for fuel or timber. With the exception of the pine, almost all kinds are to be found. The most common are the juglans nigra, carya olivæformis, carya alba, acer saccharinum, acer negundo, platanus occidentalis, cerasus virginiana, morus rubra, quercus alba, etc."

The annual mean of rain and snow, on an average of 3 years, is

32.68 inches.

The diseases reported within the ten years are contained in the following abstract—

um

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Leavenworth, for a period of ten years.

		1492	235 4 1 1 121 179 179 76 53 77 78 78 78 73 73 73 73 73 74 75 75 76 76 77 78 78 78 78 78 78 78 78 78 78 78 78	1242
	1838	273	18 10 10 10 118 23 23 6	237
	1837	30.3	85 1 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	356
ER.	1836	232	35 14 14 16 - 10 36 33	184
ART	1835	87	31 10 10 10 11 11 33	66
QU	1834	85	rg	33
SECOND QUARTER.	1833	138	20 20 20 20 44 20 40 40 40 40 40 40 40 40 40 40 40 40 40	85
SEC	1832 1833 1834 1835 1836 1837 1838	159	111 21 21 3 3 3 3 5 6 6 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	115
	1831	215	15 34 34 32 33 10 10	133
	1829 1830 1831	•	Report defective.	
	1829		Report defective.	•
	1	2127	216 3 4 4 152 18 134 49 83 206 40 263	1747
	8838	300	111 2 2 2 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1	276
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	249	19 77 27 5 5 8 8 8 8 8 8 67	231
ين	9881	304	38 22 22 22 111 37 28	259
RTE	1835	208	43 27 20 20 20 4	133
QUA	1834	96	10 10 10 10 10 10 10 10 10 10 10 10 10 1	38
FIRST QUARTER.	1833	292	9 1123 1 1 20 6 6 6	201
F	1832	204	4 82 1 1 1 1 1 2 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	166
	1831	224	3 1 1 101 10 10 3 3 3 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	180
	1830	,	Report defective. , , , , , ,	•
	1829	280	79 2 2 2 2 2 2 2 2 3 2 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	263
	•	•	ira- tive	•
			vcr " " " " " " " " " " " " " " " " " " "	•
		ngth	of the canson of the system of the called absert and injection of the called absert an	• .
	s s	Mean strength	Intermittent fever Remittent " Synochal " Typhus " Diseases of the respiratory organs Diseases of the digestive organs organs organs Diseases of the brain and nervous system Dropsies Upopsies Upops	Total
	Years	Меа	Intermite Remitter Synochas Typhus Diseases tory o Diseases o organism Diseases nervo Dropsie Rhcuma Venema	

		2126	302 22 22 22 205 301 301 7 7 7 88 56 94 227 459 459	1825
	1838	358	76 1 100 100 8 8 8 8 113 34 48 48 135	499
	829 1830 1831 1832 1833 1834 1835 1836 1837 1838	342	51 - 24 24 69 69 7 7 7 7 47 47 47 45 151	439
ER.	1836	205	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	119
FOURTH QUARTER.	1835	307	43 6 6 7 7 8 7 8 7 8 7 8 7 8	274
ı on	1834	219	69 - 4 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	148
лктн	1833	124	81 - 1 - 4 - 1 - 4 8 8 1 8 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	85
FOL	1832	163	13 19 19 5 5 9 9 9 7 7 7 11	105
	1831	210	66 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -	114
	1830	198	11 480	42
	1829		No report. , , , ,	
		1546	313 24 2 2 2 37 532 119 118 118 1162 46 358	1692
	1838	220	54 2 2 2 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4	322
	1837	363	39 8 8 8 8 8 8 8 9 8 9 15 15 143 148	627
R.	1836	169	29 	129
RTE	1835		No report.	
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	131	2001. 8 1.86	93
IIRD	1833	140	69 1 115 1 1 1 1 1 1 1 1 1 1	223
TH	1832	91	41 1 4 8 9 4 4 0 1 0 1 0 1	49
	1831	214	36 6 7 - 23 - 23 - 23 - 24 - 25 - 25 - 25 - 25 - 25 - 25 - 25 - 25	181
	1830	187	12183.1 0 14	37
	1829	31*	8,88,111 1 8 1,18	31
			ato- stive	
	'	٠,	Remittent fever	1
	•	ngth	ant fever fever cover of the ns - of the syste caffecti and in	त्
	s s	Mean strength	Intermittent fever - Synochal fever - Typhus fever - Diseases of the respin ry organs - Diseases of the diges organs - Diseases of the brain nervous system - Dropsies - Rheumatic affections Vorneral affections Vorneral affections Wounds and injuries Ebriety - All other diseases -	Total
	Years	Mea	Remitical Remitical Remitical Synoch Typhus Disease organ Disease nerve Dropsie Rheums Rheums Rheums Wound Ebriety All other All other Synopsies organ Rheums Rheum	

• The actual strength is 41, but as the sick-report embraces only two months, 31 becomes the equivalent strength.

Under the class of diseases of the respiratory organs are comprised 842 catarrh, 37 pneumonia, 57 pleuritis, and 19 phthisis pulmonalis; under the head of diseases of the digestive organs, 903 diarrhæa and dysentery, 49 cholic and cholera, and 19 hepatitis; under the class of brain and nervous system, 16 epilepsy, 1 apoplexy, and 8 delirium tremens; and under that of venereal affections, 172 gonorrhæa, and 30 syphilis.

The total of deaths, according to the post returns, is 47, the annual ratio of mortality being  $2\frac{4}{10}$  per cent. Of these, 28 are reported in the medical returns, viz. 3 typhus fever, 2 remittent fever, 4 phthisis pulmonalis, 2 pneumonia, 3 cholera epidemica, 3 atrophia, 1 chronic diarrhœa, 1 dysentery, 1 phrenitis, 1 apoplexy, 1 epilepsy, 1 drowned, 1 gun-shot wound, 1 suicide, 1 assassination, and 2 accidental, making, excluding the six last, an annual mortality of 1-2 per cent. In the post returns, 19 deaths are reported in 1834, of which no report is made by the medical officer. These fatal cases occurred among the dragoons, who had just returned from an expedition among the Pawnees. command of the post proper, there was no death during the year. The result of this year and the subsequent ones cannot be regarded as a fair test of the healthfulness of the locality of Fort Leavenworth, as the dragoons generally made summer campaigns into the country of the Osages, Pottawatamies, &c. In 1833, there occurred 9 cases of epidemic cholera among the mounted rangers at this post, 3 of which proved fa-This disease, although much diminished in fatality compared with the wide-spread epidemic of the previous year, prevailed very generally along our western frontier. In the first quarter of 1837, "the measles," says Surgeon Macomb, "prevailed among the troops; after which an epidemic catarrh made its appearance, similar to the influenza, and sometimes accompanied with symptoms of the peripneumonia notha of Sydenham." The unusual prevalence of diarrhea (251 cases) in the third quarter of this year, is ascribed to the moisture and extreme heat of the summer months acting upon unacclimated constitutions, most of The post was the troops being recruits from the east and the north. regarded by the medical officer as "decidedly salubrious."

In a topographical description of this post, it is remarked by Surgeon Macomb, that "the Missouri river is at its highest rise in the month of June, in consequence, as it is supposed, of the melting of the snow in the Rocky Mountains. It continues thus full and overflowing the low grounds until the last of July. On the subsidence of the waters, many low spots in the bottoms are left filled with stagnant water, which the sun rapidly decomposes. Hence we may say that about the 1st of August the season of sickness commences. The diseases are, early in the season, chiefly intermittent fever and dysentery. Subsequently, they assume the remittent type; these are complicated with local con-

gestions, and ultimately become typhoid.

"The treatment is generally indicated by the more urgent symptoms of the disease. Intermittent fever is treated in two stages—1st, during the paroxysm, and 2d, during the apprexial stage. Emetics, composed

of ipecac 21 grs. and Ant. tart. grs. 3, are exhibited with manifest advantage during the paroxysm, followed up with cathartics of calomel 21 grs. and pulv. jal. grs. 16, sup. tart. pot. et jalap āā 22, senna, manna, and neutral salts. The sulphate of quinine in small doses, during the intermission and after the evacuants, will generally complete the cure.

"Dysentery is usually treated by evacuants, viz. caloniel followed by castor oil, blisters on the abdomen, pulv. dov., or cal. opii. et ipecac. combined, in small doses. V. S. is seldom necessary, although cupping

is sometimes advantageous.

"When the fevers become congestive, blisters, sudorifics, and counter irritants, are among the best remedies, V. S. and local bleeding in the early stages, and mercureal alteratives in the secondary and latter stages.

"In the typhoid stage, the diffusible and permanent stimulants are

usually indicated."

Although this post, considering its relative position, may be justly regarded, at the present day, as decidedly salubrious, yet on reference to the history of its early establishment in 1827 and 1828, it will be seen that the command suffered much from the diseases incident to troops establishing themselves in an uncultivated region.

The relative agency of the seasons in the causation of disease in

general is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
9 first quarters - 8 second " -	2,127 1,492	1,747 1,242	817 832
9 third " -	1,546	1,692	1,094
9 fourth " -	2,126	1,825	859
Annual ratio -	1,823	6,506	3,569

Every man has consequently been reported sick, on an average, about

once in every three months and a third.

Having concluded the investigation of those stations in the northern region of the United States, remote from the ocean as well as inland seas, and consequently characterized by extremes of temperature and by seasons strongly contrasted, the results obtained from this class will now be stated with the view to general deductions.

The following table exhibits the mortality of each post, and the relative degree of sickness, based on the statistics of ten years—from 1829

to 1839—

TABLE exhibiting the mortality of each post, and the relative degree of sickness.

-	Mean aggregate strength.	Deaths per Ad- jutant Gene- ral's returns,	Deaths per medical returns.	Total of cases reported.	Ratio per 1,000 of mean strength, under treatment annually.
Hancock Barracks -	1,633	17	9	3,116	1,908
West Point	3,734	13	9	16,804	4,500
Fort Snelling	1,496	24	11	3,534	2,362
" Winnebago	1,534	20	14	2,145	1,398
" Crawford	1,793	43	28	5,472	3,052
" Armstrong	591	20	8	1,527	2,584
" Leavenworth -	1,823	44	22	6,506	3,569
2202701111111					
Aggregate	12,604	181	101	39,104	
Ratio per 1,000 -	-	14*	8	-	3,103

The annual ratio of mortality, according to the medical reports, is  $\frac{2}{10}$  per cent., and according to the post returns,  $1\frac{4}{10}$  per cent. As in the preceding classes, the deaths from epidemic cholera (six at Fort Crawford and three at Fort Leavenworth) have been excluded, and in the medical returns, such deaths also as arose from drowning, suicide, and other than natural causes. As the ratio per 1,000 of mean strength annually under treatment is 3,103, it appears that each man, on an average, was reported sick once in nearly every four months. The comparative degree of sickness in this class will be shown in a distinct table.

The tabular views in reference to certain specific diseases having a close relation with season and climate, as well as the relative agency of the seasons in the etiology of morbid action, exhibited in the preceding classes, will be now continued, in further illustration of the diseases of this system of climate.

<sup>\*</sup> This result is based on the aggregate mean strength of the post returns, being 12,790.

TABLE exhibiting the relative influence of the seasons in the production of morbid action, &c.

DISEASES.	•	Hancock Bar- racks.	West Point.	Fort Snelling.	Fort Winneba-	Fort Crawford.	Fort Armstrong.	Fort Leaven- worth.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
INTERMITTENT FEVE	R.	`									
First quarter - Second "	•	2 2 3 3	13 24 36 38	3 13 33 16	5 22 28 21	21 69 262 125	6 37 40 18	216 235 313 302	266 402 715 523	12837 11898 12465 13219	21 34 57 40
Annual ratio	-	10	111	65	76	477	101	1066	-1906	12604	151
REMITTENT FEVER											
First quarter - Second "		5 3 6 1	3 6 3 15	4 24 5	6 - 5 10	- 3 61 13	4 16 41 10	3 4 24 22	21 36 164 76	12837 11898 12465 13219	2 3 13 6
Annual ratio	-	15	27	33	21	77	71	53	297	12604	24
SYNOCHAL FEVER.											
First quarter - Second "	:	7 16 10 2	124 122 162 74	5 8 3 2	3 4 14 1	1 1 -	3 2 4 2	1 - -	142 154 194 81	12837 11898 12465 13219	11 13 16 6
Annual ratio	-	35	482	18	22	2	11	1	571	12604	45
TYPHUS FEVER.			,								
First quarter - Second " Third " Fourth "	-	- - -	- 3 -		1 -	- - 1	- - -	4 - 2 -	4 1 5 1	12837 11898 12465 13219	3-10 1-10 4-10 8-100
Annual ratio	-	_	3	_	1	1	_	6	11	12604	9-10
DIARRHOEA AND DYS TERY.	EN-			,							
First quarter - Second " Third " Fourth "	:	47 45 100 72	171 151 497 204	29 69 173 50	24 40 86 43	51 175 588 119	9 61 102 36	84 103 491 225	415 644 2037 749	12837 11898 12465 13219	32 54 163 56
Annual ratio	-	264	1023	321	193	933	208	903	3845	12604	305

TABLE exhibiting the relative influence of the seasons in the production of morbid action, &c.

-											
DISEASES.	~	Hancock Bar- racks.	West Point.	Fort Snelling.	Fort Winne-	Fort Crawford.	Fort Arm- strong.	Fort Leaven- worth.	Potal.	Aggregate mean strength.	Ratio of cases pcr 1,000 of mean strength.
CATARRH AND INFL	<b>U-</b>										
First quarter - Second " Third " Fourth "	-	168 83 62 124	783 559 555 1176	314 182	162 74 80 132	288 255 146 359	96 46 19 48	537 92 33 180	2244 1423 1077 2233	12837 11898 12465 13219	175 120 86 169
Annual ratio		437	3073	920	448	1048	209	842	6977	12604	552
PNEUMONIA.		_					;				
First quarter Second " Third " Fourth "	-	19 6 11 5	15 4 20 37	3 2 3 1	5 4 1 1	6 6 2 14	3 3 - 3	15 13 7 2	66 38 44 63	12837 11898 12465 13219	5 <b>3</b> 4 5
Annual ratio	-	41	76	9	11	28	9	37	211	12604	17
PLEURITIS.											
First quarter - Second "	-	27 35 9 12	20 3 - 11	16 6 13 17	6 16 2 5	19 9 17 30	6 7 3 7	23 14 4 16	117 90 48 98	12837 11898 12465 13219	9 8 4 7
Annual ratio	-	83	34	52	29	75	23	57	353	12604	28
PHTHISIS PULMONAL	ıs.										
First quarter - Second "	:	3 1 - 5	6 - 1 -	4	1 2 6 1	3 2 5 3	- 1 1 1	11 4 - 4	28 10 13 14	12837 11898 12465 13219	2 1 1 1
Annual ratio		9	7	4	10	13	3	19	65	12604	5
RHEUMATISM.			-								
First quarter - Second " Third " Fourth "		47 86 56 59 	177 187 198 126 688	108 127 73 84.	33 35 15 26 109	42 62 58 47 	33 33 24 23 113	134 76 37 88 335	574 606 461 453	12837 11898 12465 13219	45 48 37 34 —————————————————————————————————
ildai satio				30%		203	110	500	2034	12004	

In regard to pulmonary diseases, the most striking fact, in this class of posts, is the high ratio of catarrhal affections, compared with the two preceding ones. The results also show prominently the comparative influence of the seasons in their causation, the ratios of the first and fourth quarters being respectively 175 and 169, and of the second and third, 120 and 86. As respects the remaining pulmonic diseases, the results are not very dissimilar from those exhibited in the foregoing classes. The various relations of our different systems of climate, in reference to these diseases, will be more fully elucidated, when the investigation of each class of posts shall have been completed. Suffice it to say that on the coast of New England, as the ocean modifies the atmospheric temperature, the annual ratio of catarrhal cases per 1,000 of strength is 233; on the great lakes, where a similar modifying agency is in operation, it is 300; whilst the third class, characterized by the extreme range of the thermometer, has a ratio as high as 552.

In the following table the annual results, in reference to this class of diseases, as well as the mortality from each, are exhibited. The total of deaths given are those only which occurred among men on the sicklist—a ratio considerably lower than that of the post returns, which in-

clude the deaths from all causes.

TABLE exhibiting the annual results and mortality of diseases.

,	Ratio of cases per 1,000 of mean strength.							Deaths.							
Northern division.	Mean strength.	Catarrh and influenza.	Pneumonia.	Pleuritis.	Phthisis pulmo- nalis.	Total.	Catarrh and influenza.	Pneumonia.	Pleuritis.	Phthisis pulmo- nalis.	Hæmoptysis.	Total per medi- cal returns.	Causes not specified.		
	W W	Ca —	Pn	ă —	Ph n	$\mid T_0$	- Ca	Pn	Ple	- Ph	H	To C	 		
Posts on the lakes	5973	300	19	30	9	358	1	4	_	9	_	65	12		
Atlantic posts Posts remote from the ocean	3130	233	22	26	9	290	-	1	-	15	-	140	16		
and the lakes	12604	552	17	28	5	602	-	3	1	22	1	119	16		
Total	21707	439	18	28	7	490	1	8	1	46	1	324	44		

The following abstract exhibits, at a single glance, the relative mortality, extent of sickness, and comparative prevalence of certain diseases, in the three classes of posts adopted in reference to the northern division of the United States—

TABLE exhibiting the relative mortality, extent of sickness, and comparative prevalence of certain diseases.

	per	per re-	mean treat-	Ratio of cases per 1,000 of mean strength.												
Systems of	er centum returns.	centum General's	er 1,000 of m th under tr annually.	t fever.	ever.	fever.	er.	and dys-	pu		tor	y orga	ins.			
climate.	Deaths per medical re	Deaths per Adjutant turns.	Ratio per 1, strength ment ann	Intermittent fever.	Remittent fever.	Synoehal fe	Typhus fever.	Diarrhœa a entery.	Catarrh a influenza.	Pneumonia.	Pleuritis.	Phthisis pr monalis.	Total,			
North'n lakes Atlantic coast Stations re- mote from	9-10 1 5-10	1 3-10	2185 1912	193 36	33 26	16 43	4 5	253 170					358 290 *			
ocean and inland seas.	8-10	1 4-10	3103	151	24	45	5 9-10	300	552	17	28	5	602			
†Average -	9-10	1 5-10	2660	143	26	37	2 4-10	269	439	18	28	7	490			
†Average -	1 1-10	1 6-10	2400	217	28	35	3 3-10	243	362	19	28	8	412			

In regard to the ratio of mortality, it is seen that there is little difference between the first and third class of posts. On the Atlantic coast, it is about 50 per cent. higher than the mean of the other two classes—a result to be ascribed mainly to the circumstance that the troops have more easy access to spirituous liquors. Moreover, in the last class, more than one-fourth of the aggregate mean strength consists of the cadets at the military academy, among whom the usual effects of alcoholic potations among soldiers are not exhibited.

As regards the relative degree of salubrity, as shown by the ratio of cases reported in each class, it appears that the third is about 50 per cent. higher than the mean of the other two; but in estimating the value of this result, it is necessary to bear in mind the high average of West Point and Fort Leavenworth, as detailed under each post respectively.

In reference to intermittent fever, a striking difference is found to obtain. On the lakes this disease is very rife, whilst on the New England coast it is almost unknown, the cases reported being generally of foreign origin. The ratio of the third class is also high, owing more especially to the locality of the Forts Crawford and Leavenworth, the latter being near the 39th degree of latitude. At Hancock Barracks, West Point, and Forts Snelling and Winnebago, the occurrence of the disease is unu-

<sup>\*</sup> In the ratio of diseases of the respiratory organs, Fort Independence is excluded.

<sup>†</sup> Of these two averages, the former expresses the result of a comparison between the aggregate strength of the three divisions, and the aggregate of cases and deaths, whilst the latter shows the mean of the results obtained in each class. The first exhibits the actual ratios given by the statistics of the posts, whereas the second supposes an equal number of troops in each division.

sual. As respects remittent fever, there is no great contrast presented in the averages of the three classes—a result somewhat inconsistent with the doctrine of its common origin with intermittent fever, when it is considered that the New England coast enjoys an exemption from the latter. In regard to synochal fever, it is found that the ratio of the first class is much the lowest; and in the third, a great majority is furnished by West Point, many of these being reported under the name of *ephemeral*. Of typhus fever, the average is far the lowest in the third class. Diarrhæa and dysentery show considerable diversity in their ratios, being much the lowest on the sea-coast, thus implying a connexion with

diseases of malarial origin.

Pulmonary diseases in general are no less under the influence of season and climate than intermittent fever. In tracing out the comparative prevalence of the more prominent modifications of this class of diseases, so far as relates to their annual results, it is found that, as a class, the ratio of the third is nearly twice as high as the mean of the other two systems of climate; but this result arises wholly from the The averages of pneumogreater prevalence of catarrh and influenza. nia and pleuritis exhibit little variation. The ratio of phthisis pulmonalis, however, contrary to the general result, is much lower in the third than in either of the other two classes; but this difference is more apparent than real, from the circumstance that nearly all the fatal cases of consumption are ascribed to the abuse of ardent spirits. In the third class, for example, if the results of West Point are excluded from the calculation, the ratio of cases per 1,000 rises nearly to 7; and the difference still existing is doubtless owing to the greater facility of obtaining, at the posts along the seaboard, inebriating potations.

The following table shows the number of deaths in each month, ac-

cording to the post returns, in the three classes described-

TABLE showing the number of deaths in each month.

Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
22	27	26	26	32	28	55	41	39	25	37	40

The ratio of November and December may be regarded as the highest, for in the total of July are included thirty deaths from epidemic cholera, in August six, and in September six, from the same cause.

### MIDDLE REGION OF THE UNITED STATES.

This division comprises two general systems of climate, which bear the same meteorological relation to each other as the modified climate of the great lakes and the coast of New England does to that of the class last described. Whilst in the northern division a steady temperature predominates, this one, notwithstanding the extremes of temperature are much more modified, is characterized by variableness. On reference to abstracts A, B, C, of the "Remarks" to the meteorological register, the difference in the climate of the two regions of the middle division, so far as temperature is concerned, may be seen. Thus, Jefferson Barracks shows a greater contrast in the seasons than Washington City; and on comparing Fort Gibson with Fort Monroe, which is 1° 32′ north of the

former, a similar result is exhibited.

Of the two classes of posts pertaining to this division, the *first* embraces the stations on the sea-coast and inlets of the ocean between the Delaware and Savannah rivers, viz: Forts Delaware, McHenry, Severn, Washington, and Monroe, Bellona Arsenal, Forts Moultrie, and Johnston, and Oglethrope Barracks; and the *second* comprises the interior posts, viz: Jefferson Barracks, Forts Gibson, Smith, and Coffee, Towson, and Jesup.

### I. THE ATLANTIC COAST.

### FORT DELAWARE.

### LATITUDE 39° 35', LONGITUDE 75° 29'.

Fort Delaware is situated on a mud island, formed by the deposition of alluvion in the Delaware. The soil is of such a spongy nature that any heavy body will gradually sink for several days. It is four miles from Newcastle, and about forty miles below Philadelphia.

The diseases reported within the ten years are condensed in the sub-

joined abstract-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Delaware, for a period of ten years.

		372	23	0 83	-	17	30	10	•	13 0	63	12	- !	26	159
	1838	•					•	•	•		•	•	•	'	•
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	'				•	•	•	•	٠.	•	•	•	٠	
ER.	1836		1		•	•	•	•	•	1 1	•	ı	•	· ·	
SECOND QUARTER.	1835	1	•		1	•	•	٠.	ī	٠.	.1	•	١	•	·
QU.	1834	ı	•		1 ,	•	•		•	١.	'	•	•	•	•
INOX	1833		•		٠	,	•	•	•		'	'	•	'	
SEC	1832	*04	က		•	က		•	1 '	<b>⊣</b> ,	٠	_	•	ಣ	12
	1831	94	12		1	4	•	2	. ,	_ c		-	_	-	29
	1830	106	4		•	-	21	C.S	. (	× -	,	•	•	લ્ય	33
	1829	102	4,	2 62	_	6	œ	က	. (	n s	,	10	1	20	85
		399	7	- =	_	34	45	2	. 3	- 6	က	10	•	24	156
	1838				•	•	•	•	•		•	•		•	•
	1837	•			1	•	•	•	•			•	•		'
2:	1836	•			•	•	•	•	•	•	•	•	•	•	
RTE	1835	•	,	1 1		•			•	•		1	•	'	'
QUA	1834	•		• •	•	•	•	•	,		•			1	•
FIRST QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838		•		,		•	•	•	1 (	•	•		•	•
F	1832	116			•	23	9	•	•	65 <	Η ,	4		9	46
	1831	66			•	25	4	_	1 1	m -	1 63	•	•	က	23
	1830	119	9		•	es	34	က	•	<b>-</b> 0	-	20		12	67
	1829	65	•	. 4	_	7	-	7	•		٠.	1	•	က	20
	'		•		• ,	rato-	stive	and -	•	•		1	!	•	•
	Years	Mean strength .	Intermittent fever -	Remittent fever - Svnochal fever -	Typhus fever	Useases of the respiratory organs -	Discases of the digestive organs	Diseases of the brain and nervous system -	Dropsies	Rheumatic affections	Venereal anections	Wounds and injuries	Ebriety	All other diseases -	Total

\* Average mean strength for two months.

## ABSTRACT—Continued

		329	47	•	ı	83	25	32	10	•	က	6	сş	17	-	21	169
	1838		.	•	•	•	•		'	•	•	•	•	•	•		•
	1837		,	•	•	•	•		•	•	•	'	•	•	•	•	
ER.	1836			•	•	•	•	•	•	•	•	•	,	6	•		
ART	1835	•	•	•	•	•	•	•	•	•	•	,	•	•	•	•	1
FOURTH QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	,	•	•	•	٠,	•	•	•	•	•	•	•	•		'
JRTE	1833	,	•	•	•	•	•	•	,	•	•	,	4		•		•
FOI	1832	•	,	•	•	•	•	,		•	•	•	•	•	•	•	1.
	1831	126	11	•	•	•	18	•	63	•	_	4	_	લ્ર	_	2	45
	1830	87	-	•	•	٠	-	12	63	•	_	•	•	-	•	က	21
	1829	116	35	•	•	ς₹	9	20	9	•	-	co.	_	14	•	13	103
		302	139	40	•	က	-	51	7	•	6	က	લ્ર	19	•	91	290
,	1838	,		,	•	•	•	•		•	,	•	•	•	•	•	•
	1837	•	1	•	•	•	1	'	•	•	•	•	•	•	•	•	•
R.	1836	•	•	•	•	•	•	,	•	•	,	•	•	•	•	•	'
ARTE	1835	•	•	•	•	•	• 1	•	•	•	•	•	•	•	•	•	,
QU.	1834	•			•	•	•	•	•	•		•	•	•	•		'
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	•	•	•	•	•	•	•	٠	١		•	•		•	•
T	1832	•		•	•	•	•	•	•	•	•		ьə	en	gcı	ΕΛ	
	1831	91	12	4	•	•	•	က	•	•	က	-	_	63	,	2	31
	1830	95	96	'	'	٠	•	20	4	•	٠	1	•	ςş	1	က	125
	1829	116	31	36	•	က	-	28	က	•	9	сs	-	15		œ	134
	•	•	'	•	•	•	atory	a ·	and -	•	•	•	•		•	•	• •
	•	,	ver -	- 33	- "	,,	Diseases of the respiratory organs	em a	Diseases of the brain and nervous system -	•	Rheumatic affections	;	Ulcers and abscesses	Wounds and injuries	•	- ses	1
1	•	rength	ent fe				of the	5	of the	1	ic affe		sqa pa	and i	'	disea.	Total -
	Years -	Mean Strength	Intermittent fever -	Remittent	Synochal	Typhus	organs	organs	iseases of the brain nervous system -	Dropsies	eumat	Venereal	ers an	spuno	Ebriety	All other diseases	To
	Yea	Me	Inte	Reı	7.	-	, d	2	Si C	<u> </u>	<b>3</b>	Vel	5	×	Ebi	411	

Under the class of diseases of the respiratory organs are comprised 55 catarrh, 2 pneumonia, 6 pleuritis, and 11 phthisis pulmonalis; under the head of digestive organs, 21 diarrhea and dysentery, 87 cholic and cholera, and 20 hepatitis; under the class of brain and nervous system, 1 epilepsy, and 4 mania a potu; and under that of venereal affections,

25 gonorrhæa, and 9 syphilis.

As the total of deaths, according to the post returns, is eleven, and the aggregate mean strength is three hundred and fifty, the annual ratio of mortality is a fraction above three per cent. All of the deaths are reported in the medical returns, viz: two remittent fever, one intermittent fever and anasarca combined, two phthisis pulmonalis, one pneumonia typhoides, two delirium tremens, one cynanche maligna, one aneurism of the aorta, and one ulcer in ano. Although the ratio of mortality is high, yet the causes of death are, in most instances, not ascribable to The high average of intermittent fever, in climate or local position. the summer of 1829 and 1830, is attributed to the marsh mud thrown up from a marsh ditch encircling the island. The annual ratio of intermittent fever is sixty-two per cent., and that of remittent fever is sixteen per cent. In 1831, many cases of the most obstinate constipation of the bowels were reported both at this post and at Fort Severn, followed in some instances by paralysis of the hand and fore-arm. It was ascribed to the white lead used by the men in cleaning their belts and gloves. As it was necessary to moisten the material, and apply it by means of a sponge, the hands were daily exposed to its action. As the belts were also rubbed with pumice stone, particles of the lead may have been in-It became necessary to abandon its use, substituting pipe clay. This post, in consequence of a conflagration, was evacuated on the 9th of February, 1831. The troops remained at Delaware City until the 28th of the same month, when the head quarters were established at In June, 1832, the troops were transferred to Fort Columbus.

On referring to the history of this post, prior to 1829, it is found that in the third quarter of 1825 nearly every man suffered from diarrhæa and intermittent and remittent fever, (Vide p. 46,) and in 1827, the deleterious effects arising from the introduction of lead into the system was manifested in a large portion of the command. See pp. 56 and 57.

The relative agency of the seasons in the causation of disease in geng-

ral is shown in the following table—

TABLE showing the relative agency of the seasons in the production of disease in general.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
4 first quarters 4 second " - 3 third " - 3 fourth " -	399 372 302 329	156 159 290 169	391 427 960 514
Annual ratio -	350	774	2,211

Hence every man, on an average, was reported sick once in about every five months and a half.

### FORT McHENRY.

## LATITUDE 39° 17' N., LONGITUDE 76° 36' W.

Situated on a peninsula, bounded on the one side by the Patapsco river, and on the other by the harbor of Baltimore, Fort McHenry is about three miles distant from the centre of the city, in a southerly direction. It occupies the whole of the extremity of the peninsula, covering an area of 55 or 60 acres; the fort is elevated about 36 feet above the level of the river, when at high water mark; and as this elevation has a gradual slope in every direction, the drainage is naturally good.

The surrounding country is rather low and level, with occasional undulations; but there are no mountains or very high lands in the vicinity. The soil is mostly argillaceous and silicious. During the summer, the prevailing winds vary from south to east, whilst those of the winter are mostly north-west. When blowing from the south, the current of air traverses some low land called Romney Marsh, on the opposite side of the Patapsco; but the distance of this marsh from the fort is upwards of a mile.

The annual quantity of rain, on an average of three years, is 39 inches.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort McHenry, for a period of ten years.

		598	101 101 101 101 101 101 101 101 101 101	441
	8881			•
	1837	•		•
ER.	1836	•	May 20th, embarked for Ft. Mitchell. , ,	•
ART	1835	59	6 6 1 10 10 22 22 22 22 22 22 22 22 22 22 22 22 22	74
QU.	1834	58	10 1 1 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	53
SECOND QUARTER.	1833	09	8, 1, 8 5 , 18,481	22
SEC	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	91	88	42
	1831	113	27	63
	1830	109	29 1 1 9 9 20 1 1 1 1 1 6 6	83
	1829	108	88 4 - 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	104
		652	71 1 2 2 - 100 100 113 113 113 114 81 14 81	421
	1838	•		•
	1837			•
<b>2</b>	1836	09	81. 4	30
RTE	1835	62	20 20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	72
FIRST QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	61	0.0000004	44
RST	1833	•	Report defective	•
F	1832	120	5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	52
	1831	112	2	36
	1830	119	22 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	75
	1829	118	8 8 1 1 1 1 2 1 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1	112
	Years	Mean Strength -	Intermittent fever Remittent fever Synochal fever Typhus fever Diseases of the respirato- ry organs Diseases of the digestive organs Diseases of the brain and nervous system Dropsies Rheumatic affections Rheumatic affections Rheumatic affections Control of the control of t	Total -

ABSTRACT-Continued.

		569	123	ಣ	•	•	95	41	5	•	10	31	1	59	9	24	408
	1838			•	•	•	•		1	1	•	•	•	1	1	•	,
	1837	•	•	1	1	•	,1	1	1	'	•	•	1	•	,	1	7,
ER.	1836	•	•	•	•	•_	1	1			•	•	•	•	í	,	
ART	1835	57	20	_	¥	•	2	73	63		က	က	2	C\$		2	36
FOURTH QUARTER.	1832 1833 1834 1835 1836 1837 1838	58	35	,	ı		53	11	,	:	C\$	4	-	9	-	m	92
RTE	1833	61	13		•	•	7	10		1	-	4	•	12	•	C\$	49
FOL	1832	99	ಣ	_	1	•	4	οŧ	•		•	-	-	6	-	cs.	24
	1831	121	12	•	•	'	83	2	_	•	63	11	-	6	က	5	83
	1839 1830 1831	107	14	•	•	•	11	က	1		,	લ્સ	-	11	-	က	46
	1829	109	4	_	•	١	9	2	¢\$	•	ÇE	9	દર	10	1	4	7.9
		292	245	25	,		12	122	7	,	14	30	16	51	10	53	561
	1838			•		•	•	1	,	'	,	•	•	1	•	•	
	1837		1	•	1	•	,	•	•	'	•	•	,	•	•	•	
ež.	1836	•		,	,	,	,	•	'	•	•	•	•	,	'		
THIRD QUARTER.	1835	57	12	•	•		-	10	,	,	•	2	က	က	-	•	35
QUA	1834	59	53	12	•	a	es	20	,	•	4	က	\$3	1	က	13	119
IRD	1833	64	41	_	•	,		7	•	•	•	65	c۷	12	-		99
EL	1832	57	က	က	•	ì	က	37	ಣ	•	cs,	cs.	63	ū	-	က	64
	1831	121	31	က	•	•	63	17	-	ı	က	6	•	12	4	9	87
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	108	55	_	•	1	R	7	•	•	_	Ç	က	10	,	2	88
	1829	101	50	5	١	1	જ	24	က	•	4	4	4	¢,	•	က	101
	Years	Mean strength -	Intermittent fever -		Synochal " -	Lyphus "	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and nervous system	Dropsies	Rheumatic affetions -	Venereal "	Ulcers and abscesses -	Wounds and injuries -	Ebriety	All other diseases -	Total

Under the class of diseases of the respiratory organs are comprised 211 catarrh, 11 pneumonia, 30 pleuritis, and 3 phthisis pulmonalis; under the head of digestive organs, 208 diarrhea and dysentery, and 23 cholic and cholera; under the class of brain and nervous system, 6 epilepsy, and 2 mania a potu; and under that of venereal affections, 59 gonorrhea, and 64 syphilis.

As the total of deaths, according to the post returns, is 12, and the aggregate mean strength is 624, the annual ratio of mortality is nearly 2 per cent. Of the deaths, 10 are reported in the medical returns, viz. 1 bilious cholic, 1 phthisis pulmonalis, 2 ebriety, 1 mania a potu, 1 chronic diarrhæa resulting from an attack of epidemic cholera at Fortress Monroe, 1 wound, 1 sudden, and 2 from causes not designated, being

 $1_{10}^{7}$  per cent.

Although much disease, as will be seen, has always prevailed at this post in the summer season, yet among the causes of death just given there is scarcely one that can be ascribed to locality. The following remarks, collated from the quarterly sick-reports, will serve to elucidate this point. In 1829 the command, as usual, went into summer encampinent; but as Fort McHenry was being repaired, it was necessary that all the artificers and some of the soldiers should be employed at the fort; and consequently, of 55 cases of intermittent and remittent fever reported, all, with the exception of one case of the former type, were contracted at the fort. In the third quarter of 1830, there are 56 cases reported, ascribed by Assistant Surgeon French to the delay in proceeding to a summer encampment. It is his opinion that the post ought to be abandoned on the 15th June. In the summer of 1831, a camp was again formed. It is remarked that no death among the men had occurred in two years. In 1832, in transmitting the sick-report of the 2d quarter, it is remarked—"The cases of intermittent and remittent fever begin to assume a highly bilious character, and I have no doubt that in 10 days one-half of the command will be on the sick-list, unless the men be ordered to the high ground above the city, where they ought to be every year by the 30th June." On the 23d July, the command left the fort for Camp Huntingdon; and in this quarter (the 3d) there are only six cases of fever reported. "It is gratifying to state," says Assistant Surgeon French, "that during the existence of the late epidemic in this neighborhood, no case of malignant cholera occurred among the troops stationed at this post. Out of 80 persons, (men, women, and children,) about one-half were attacked with diarrhæa, and other premonitory symptoms, which yielded readily to calomel, opium, and the lancet." The high average of cases in the 3d quarter of 1834, is attributed to the circumstance that the garrison did not form the customary encampment. Bilious intermittents and remittents were the prevailing diseases, but no case terminated fatally. The annual average of intermittent fever is very high, being 91 per cent., whilst that of remittent fever is only 6 per cent.

On referring to the history of this post prior to 1829, it will be found (vide p. 46) that, in 1825, the command, in consequence of the insalubrity of the position during the summer months, retired to a camp two

miles from Baltimore, and that this step had been rendered necessary for several preceding years. As early as 1819, much is said of a violent "bilious cholic," sometimes terminating in delirium, apoplexy, and death, which prevailed at this post. It was at first regarded as a new modification of morbid action; but in 1822, (see p. 34,) by the accidental development of certain facts, it was supposed to have received a rational explanation.

It would seem, however, that this station within the last few years has become more salubrious. Unoccupied by troops, the fortification has been undergoing repairs under the supervision of the Engineer Department. The grounds have been graded, a sea-wall built, and an excellent hospital erected. It is the opinion of Dr. Roberts, a civil practitioner, who has been employed at this post for several years, that the necessity of removing to a summer camp will in future be obviated.

The following table exhibits the relative agency of the seasons in the

etiology of disease in general-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
7 first quarters - 7 second " - 7 third " - 7 fourth " -	652 598 567 569	421 441 561 408	646 738 989 717
Annual ratio -	596	1,831	3,076

Every man, on an average, was consequently reported sick once in every four months.

### FORT SEVERN.

### LATITUDE 38° 58', LONGITUDE 76° 27'.

This post is situated on Severn river, on a point of land which makes out from the city of Annapolis. It is very little elevated above the level of Chesapeake bay. The river is here about 800 yards wide. There are no marshes in the immediate vicinity.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Severn, for a period of ten years.

																						-
				FI	RST	QUA	FIRST QUARTER.	ىہ							SEC	OND	QU.	SECOND QUARTER.	SR.			
Years	1829	1829 1830 1831	1831	1832	1833	1834	1832 1833 1834 1835 1836 1837 1838	1836	1837	8881		1829	1830	1831	1832 1	833 ]	1834 1	829 1830 1831 1832 1833 1834 1835 1836 1837 1838	1836	1837	1838	
Mean Strength .	55	61	59	64	65	56		•	•	• )	360	53	26	58	59	63	09	09			•	409
Intermittent fever - Remittent " - Synochal " - Tymhus "		≈	4 . 10 .	5 14 1	ო.ო.	ი					20.	4 - 2 -	8 .	17	45	64	E 66 .	es —				. 16 18 1
Diseases of the respiratory organs		15	11	9	12	2		orida.			55	63	4	1-	5	લ	က	က	•			56
Diseases of the digestive organs	-	2	2	9	6	က	•	[H 10]	•	•	53	Ξ	23	C\$	6	17	15	2	•	•	1	84
Diseases of the brain and nervous system -		-	-	-	က		1	rked 1	•	•	2-				, ,		es 1					ი .
ic affection	. — c	. 63	· 4 4		. 65 4	- 20 6	' '	ешрэ			15	. es −	C\$ CC	es -		4-		٦.				13
Venereal Vicers and abscesses Wounds and injuries Ebriety All other diseases	- 01 10 10	6 . 6	4.0	2	20000	9 . 13 . 19	No report.	Command			277128	100004	) · 4 · 55	13.4.61	0.40	- 60 67		. 8				15 26 6 41
Total -	27	33	52	33	51	31		•		1 64	227	40	42	55	47	41	57	19		•		301

ABSTRACT—Continued.

		357	40114 83 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	24.2
	1838	٠,		
	1837	,		
ER.	1836		11111111111	1
ART	1835	58	88, 8 6 , 1 , 1 , 1	16
I QU	1834	59	2	233
FOURTH QUARTER.	1832 1833 1834 1835 1836 1837 1838	59	00071 0 0 1100401 - 2	55
FO	2881	9	101 114	52
	1831	64	2	58
	1829 1830 1831	57	000 - 113 - 10044 -	38
	1829	•	o report.	N '
		412	85 65 30 1 1 1 18 110 10 10 110 22 22 23	429
	1838	•		
	1837	•		
	1836	•	1111 1 1 111111	.   .
TER	1835	09	12:	.   65
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	61	1 1 1 1 2 2 2 2 2 4 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1	1 92
RD (	1833	61	61 62 63 64 64 64 64 64 64 64 64 64 64 64 64 64	09
THI	1832	62	-61 8 8 6 64 . 6	99
	1831	61	1000 4 5 . 10000 1.	67
	1830	52	047 8 7 1 8 6 6 4 - 7	77
	1829	55	≻00	09
			stive and	
	1 1 1 100	Mean Strength -	Intermittent fever	All other diseases - Total -
1.	Years	Mear	Intermitte Remitten Synochal Typhus By Discases Typhus Programs Typhus Discases Discases Discases Discases Nervou	

Under the class of diseases of the respiratory organs are comprised 102 catarrh, 18 pneumonia, 17 pleuritis, and 8 phthisis pulmonalis; under the head of digestive organs, 109 diarrhæa and dysentery, 93 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 9 epilepsy, 1 apoplexy, and 7 mania a potu; and under that of venereal affections, 36 gonorihæa, and 16 syphilis.

As the total of deaths, according to the Adjutant General's returns, is 16, and the aggregate mean strength is 423, the annual ratio of mortality is  $3\frac{1}{50}$  per cent. Of the deaths, 13 are reported in the medical returns, viz. 5 bilious congestive fever, 1 phthisis pulmonalis, 1 abscess of the lungs, 1 mania a potu, 1 broken spirit, 3 from causes not stated, and

1 suicide, being, excluding the last, about 3 per cent.

As the nosological term, "broken spirit," may require some explanation, the following extract is given from the report—"The subject was a discarded son. Entertaining a lively sensibility for the errors of the past, and no hope of the future, his mind for several months wandered. To avoid the coarse jests of the soldiers, he was separated from them, and placed in quietude. He uttered no complaint, but as he scarcely ate or slept, he gradually perished without consciousness of his condition."

At this post, diseases have generally manifested a violent grade of action. The fevers of the 3d quarter have generally appended to them the title of malignant. In the summer of 1830, Annapolis and the adjacent country suffered severely from "congestive bilious fever." In the third quarter of 1832–'3 and '4 also, all diseases assumed an aggravated character, and especially bilious remittents, which manifested a strong tendency to congestion. In the 2d quarter of 1830 are reported 11 cases of enteritis, which were regarded by Assistant Surgeon Smith as genuine colica pictonum, arising from the careless use of ceruse on the belts and gloves. The annual average of intermittent fever is 50 per cent., and that of remittent fever is 24 per cent. It thus appears that, whilst the former is little more than half as rife as at Fort McHenry, the latter is four times as prevalent.

On reference to that portion of these papers embracing the first decimal period, it will be seen that in 1819, and several subsequent years, this garrison, like that of Fort McHenry, was severely harassed by a pe-

culiar modification of disease, termed bilious cholic.

The annexed table exhibits the relative agency of the seasons in the production of diseases in general—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
6 first quarters - 7 second " - 7 third " - 6 fourth " -	360 409 412 357	227 301 429 242	631 736 1,041 678
Annual ratio -	385	1,199	3,114

Consequently every man, on an average, was on the sick-list once in upwards of every four months.

### FORT WASHINGTON.

LATITUDE 38° 41', LONGITUDE 76° 58'.

This fort is on the banks of the Potomac, about 16 miles below Washington city. The parade of the main work is 115 feet above highwater mark, being on a ridge extending towards the river. It is surrounded by hills rather higher than this one, the intervening space on the south-east being a deep ravine, 400 feet wide, under cultivation, with a brook running through it. On the north is also a ravine about 300 feet wide.

		340	31 16 52 7 7 7 7 7 7 8 8	255
	1838	•		•
	1832 1833 1834 1835 1836 1837 1838	. `		•
LER.	1836		Post vacant.	
SECOND QUARTER.	1835	•	No permanent command.	
D Q	1834	57	01 11 11 - 4	48
CON	1833	61	. 6 %	31
SE	1832	48	21.1.2.1.2.1.2.1.2.1.2.1.2.2.2.2.2.2.2.	4.5
	1831	59	88888 - 12 4 11 - 8228	56
	1829 1830 1831	52	. 4	42
	1829	63	1003.11.89 0 8 8 .	33
		290	20 3 3 5 6 6 6 8 8	156
	8881	,		
1	1837	•		,
.E.	1836	•		
RTE	1835	59	1   1   4	17
FIRST QUARTER	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	Temporarily transf'd to Williamsport, Md.	
RST	1833	09	1-221 2	37
FI	1832		No report.	•
	1831	63	11 - 8 - 4 - 1 4 - 22 22 8 - 8	55
	1830	58	11,, 8 % ,,1,,4,6	35
	1829	50	<b></b>	22
	1	•	pira- stive	1
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	•	ength	of the sans of the system of the caffee dabse and ir	•
	Years -	Mean strength	Intermittent fever Synochal " Typhus " Diseases of the respiratory organs Diseases of the digestive organs or the brain and nervous system Dropsies Drop	Total

ABSTRACT-Continued.

1			397	62	o ru	٠,	54	20	. c3		ç	က	4	16	30	17	267
		1838	•			•	•	•	•	ŧ	•	'	Į.	•	,	•	'
		1837			, ,	•	•	,		•	•	•	•	•	•	•	-
	ER.	1836		, .		•		•	•	,	•	,	•	•	•	•	1
	ART	1835	56	4	٠.	•	63	7		,	,	•	જ	က	લ્સ	က	24
	on.	1834	59		- 61	١.	13	9	•	•	•	•	-	C.S	લ	က	37
	FOURTH QUARTER.	1833	56	7		•	ro.	13	•	•	•	-	'	•	11	•	37
	FO	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	61	24	٠,	•	11	9	•	•	•	•	'	લ્ટ	5	2	56
		1831	58	14	ဂ က	•	15	00	•	•	_	_	,	લ	•	<b>-</b>	51
		1830	51	9 6	1 8	•	00	12	es.	•	-	-	•	4	•	١.	36
		1829	56			•		18	٠	•	sर	•		က	•	က	26
			318	7.8	£ .	,	9	90	ಣ	-	_	9	2	20	20	91	296
-		183\$	•		. 1	•		•	•	٠	•	•	•	•	•	•	
	* .	1832 1833 1834 1835 1836 1837 1833		11.1		٠	•	•	•	•	•	•	•	•	,	•	
	R.	1836	6 - <b>6</b> - 5			٠	0.	•	•	•	•	•	•	•	•		
	RTE	1835		•	1 1	•	•	•	•	•	í	•	•	•	•		-
	THIRD QUARTER.	1834	22	15	٠,	•	-	25	•	-	•	¢٤	•	લ્શ	9	લ્શ	55
	IRD	1833	56	18	٠,	_	63	30			•	•	-	લ્ર	14	લ્ર	7.1
	H	1832	47	15		•	•	6	•	•	•	_	ı	_	25	9	57
			54	19	2 '	•	-	œ		•	_		<del>, -</del>	6		က	52
		1830	48	10		•		12	•	•	•	•	_	2	•	က	36
		1829 1830 1831	99	c	١ ١		¢5	9	က	•	•	က	જ		5		25
			Mean strength	er -	Synochal fever	Typhus fever	Diseases of the respirato-	organs	Diseases of the brain and nervous system -	sies	Rheumatic affections -	real "	Ulcers and abscesses -	Wounds and injuries -	ty -	All other diseases -	Total
		Years	Mean	Inter	Synoc	Typh	Disea ry	org	Disea	Dropsies	Rheu	Venereal	Ulcer	Wou	Ebriety	All of	

Under the class of diseases of the respiratory organs are comprised 116 catarrh, 7 pneumonia, 16 pleuritis, and 4 plthisis pulmonalis; under the head of digestive organs, 154 diarrhæa and dysentery, and 44 cholic and cholera; under the class of brain and nervous system, 14 epilepsy, and 4 delirium tremens; and under that of venereal affections, 8 gon-

orrhœa, and 11 syphilis.

As the total of deaths conformably to the post returns is 14, and the aggregate mean strength is 394, the annual ratio of mortality is  $3_{15}^{\circ}$  per cent. Of the deaths, 9 are reported in the medical returns, viz. 4 phthisis pulmonalis, (2 of these, perhaps all, drunkards,) 3 sudden from ebriety, 1 frozen when in a state of intoxication, and 1 suicide. Excluding the two last, although all might be set aside on similar grounds, the ratio of mortality is 2 per cent. per annum. The vice of intemperance is, indeed, fraught with evils, both moral and physical, of incalculable magnitude. One man, for example, in a state bordering on delirium tremens, cut off his left hand with a hatchet to avoid being compelled to work.

The prevalence of intermittent fever at this post, in the summer season, has generally rendered it necessary to form an encampment at this period. The fort was usually evacuated about the middle of July, and re-occupied about the 30th September. In 1831 four men, who were left behind in charge of the public property, as well as the families that remained until late in August, had frequent attacks of intermittent fever. The cases of intermittent fever reported in the first quarter of this year, occurred chiefly among recruits who had been employed the previous autumn on the Chesapeake and Ohio Canal. The annual average of intermittent fever is 57 per cent., and that of remittent fever is 10. It is seen, however, that the ratio of this post, as well as that of Fort McHenry, is much below the reality, owing to the circumstance that the troops formed summer encampments.

On referring to the statistics prior to 1829 it is found that, in 1826, remittent fever prevailed at Fort Washington and the surrounding coun-

try to a great extent.

The comparative agency of the seasons in the production of disease in general is exhibited in the subjoined abstract—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
5 first quarters,	290	156	538
6 second " -	340	255	750
6 third " -	318	296	931
7 fourth " -	397	267	673
Annual ratio -	336	974	2,899

Consequently every man, on an average, was under treatment once in nearly every 4 months.

### FORT MONROE.

LATITUDE 37° 02' N., LONGITUDE 76° 12' W.

This fortification occupies a low sandy point or peninsula, the termination of the western shore of Chesapeake bay, bounded on the east and south-east by the waters of that bay, on the south and south-west by Hampton Roads, and on the north and north-west by Mill creek, which is an inlet of the roads. The general aspect of the country is low, and uniformly flat. The salt-water marshes, bordering Mill creek, are the only ones in the immediate vicinity, and these are inundated by every influx of the tide. The principal vegetable production is the pine, (pinus palustris.)

The annual quantity of rain, on a mean of three years, is 52.55

inches.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Monroe, for a period of ten years.

		2784	104 46 2 2 498 498 803 14 134 59 48 240 84 240 87 187	2144
	1838	119	12 27 27 26 11 11 17 17	121
	1837	•	· · · · · · · · · · · · · · · · · · ·	•
ER.	1836	113		38
ART	1835	275	11 11 40 40 40 118 118 128 128 128 128 128 128 128 128	115
QU.	1834	506	88 88 1183 14 6 6 10 377	359
SECOND QUARTER.	1833	322	10 12 48 168 11 11 10 8 8 26	319
SEC	1032 1833 1834 1835 1836 1837 1838	352	12 6 6 15 12 7 7 7 7 7 7 12 10 10 48 8	427
	1831	357	14 4 4 79 79 19 6 6 6 6 8	267
	1829 1830 1831	370	277 144 10 10 8 8 8 8 8	223
	1829	370	2 6 6 77 77 77 119 119 111 55 63	275
		2625	61 10 10 812 310 4 4 4 4 4 1133 52 388 117 117 117 117 117	1676
	1838	20	17 	93
	1837	,		•
æ	1836	218	1 7 7 7 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9	64
RTE	1835	404	3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	209
FIRST QUARTER	1834	172	30 30 10 10 4 10 10	92
RST	1833	69	4 7	36
F	1832	570	18 	479
	1831	258	32 32 15 15 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1	168
	1830	386	8 1 1 7 5 5 6 10 14 14	193
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	478	10 193 40 - - - - 14 14 16 33	342
	,	'		١
	ars	Mean strength -	Intermittent fever  Synochal  Typhus  Diseases of the respiratory organs tory organs Organs organs organs organs Organs Wheuratic affections Rheumatic affections Cheers and abscesses Wounds and injuries Ebriety All other diseases	Total -
	Years -	Mean stre	Remittent Synochal Typhus Diseases tory org Diseases organs Diseases on ervous Dropsies Rheumatic Rheumatic Veners and Wounds a Ebriety	

# ABSTRACT-Continued.

		1998	108	4	_	774	320	, •		73	48	28	133	9	59	1708
	1838			•	•	1	•	•	•	•	•	•	1	•	•	•
	1832 1833 1834 1835 1836 1837 1838	,		•	•	1	•	•	•		•	•	•	•		
ER.	1836	108	10	•	•	61	53	•	•	ıÇ	က	'	œ	•	-	117
ART	1835	210	4 0		•	က	10	•	•	લ્ય	લ્ય	4:	14	9	6	56
FOURTH QUARTER.	1834	,		•	•	•	•	÷	٠	•		110	da	J (	οN	•
JRTI	1833	208	8 26	'	'	28	31	•		10	લ્ય	9	6		23	173
FOL	1832	155	16			98	22	•		00	œ	4	18		က	208
	1831	609	36	•	1	426	97	•	٠	20	~	9	45	'	4	683
	1830	319	15		'	59	48	١	•	6	12	'	28	٠	63	206
	1829	389	19	4	-	81	48	,	_	19	14	00	11	•	17	265
		3196	244	က	cs.	319	1200	4	cs	66	81	108	303	13	184	2945
	1838	175	∞ r≎	•		6	42	1	•	14	•	_	6	•	27	1 -1
	1837	656	36	٠	•	119	352	•	CS.	56	31	09	140	_	26	1031 116
ಜೆ	1836					,		,	•	•		<b>11</b> 0	ođa	).	οN	•
THIRD QUARTER.	1832 1833 1834 1835 1836 1837 1838	280	16		•	9	42	63	•	-	•	4	9	12	œ	105
QUA	1834	499	53	٠	,	43	255	•	•	18	~	œ	25	,	17	472
IRD	1833	431	68		•	23	117	•	•	9	က	20	09	•	20	363
TE	1832	111	8 01	•		22	77	-	•	•	C.S	63	13	•	4	139
	1831	317	ο α			33	168	ı	11	14	6	တ	18		9	302
	1830	345	20		•	37	55	•	•	13	6	٠	15	•	•	177
	1830 1830 1831	382	27	9 00	લ્ય	22	92	•	•	7	20	2	17	•	2	250
	•	•		•	1,40	tive	• Pue	'	•	•	6	•		•	٠	'
	Years	Moan strength -	Intermittent fever - Remittent fever	Synochal fever .	Typhus fever	ry organs Diseases of the directive	organs	nervous system -	Dropsies	Rheumatic affections	Venereal affections	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases -	Total -

Under the class of diseases of the respiratory organs are comprised 1,974 catarrh and influenza, 249 pneumonia, 167 pleuritis, and 21 phthisis pulmonalis; under the head of digestive organs, 1,671 diarrhæa and dysentery, 682 cholic and cholera, and 3 hepatitis; under the class of brain and nervous system, 3 epilepsy, 10 mania a potu, and 6 nyctalopia; and under that of venereal affections, 144 gonorrhæa, and 96

syphilis.

As the total of deaths, according to the Adjutant General's returns, is 120, and the aggregate mean strength is 2,827, the annual ratio of mortality is  $4\frac{2}{10}$  per cent. Of deaths, 102 are reported in the medical returns, viz: seventeen phthisis pulmonalis, four pneumonia, three pneumonia typhoides, four influenza, one engorgement of the lungs, thirteen remittent fever, thirteen chronic diarrhæa, two dysentery, fourteen epidemic cholera, six mania a potu, seven sudden from ebriety, three dropsy, one worn out, two anuerism, two gangrenous ulcer, seven casualties, and three drowned. Excluding the deaths from drowning and epidemic cholera, as in the preceding calculations, the average annual mortality is  $3\frac{1}{10}$  per cent.

The most striking fact in the history of this post is the remarkable prevalence of diseases of the respiratory organs. In attempting to assign a cause, reference is made to the circumstance that the men were quartered in damp casemates. It is seen that twenty-nine deaths have arisen

from this class of diseases.

In the first quarter of 1829 are reported ninety-six cases of catarrh, sixty-four pneumonia, thirty-two pleuritis, and one phthisis. "Of the cases reported as pneumonia," says Surgeon Everett, "nearly all were strongly marked as the pneumonia typhoides of most nosologists, or the pneumonitis maligna of Good. Vena sectio being found entirely inadmissable, my whole reliance was placed upon the free use of calomel combined with cordial diaphoretics, extensive and repeated vesication, and the frequent inhalation of oxygenated vapor. But four cases proved fatal, and in these there was reason to suspect hepatic derangement from spirituous potations and previous disease." In the fourth quarter of 1831 are reported 414 cases of influenza, one of which proved fatal; and in the following quarter, there were 219 cases of this epidemic catarrh. Pneumonic affections are at all times rife; but, in the first quarter of 1837, they prevailed as an epidemic at this post and in the neighboring counties. "It is probable a modification," says Assistant Surgeon Archer, "if not the same disease, which, under the name of La Grippe, now generally prevails throughout Europe." There were three deaths from In the second quarter of 1835, there were reported two deaths from phthisis. "In the lungs of one, a trombone player," says Surgeon Zina Pitcher, "there were tuberculous excavations capable of holding four ounces of fluid; those of the other, (a dissipated man,) were studded with earthy concretions."

The annual ratio of intermittent fever is not high for this latitude, being 19 per centum annually. The average of remittent fever is 22, 13 deaths being reported from this cause. Of the deaths reported in 1837 and 1838, nine were invalids from Florida, all save one having

died of chronic diarrhea. The high ratio of cases in the third quarter of 1837 is owing to the circumstance that the command consisted of unattached recruits, and invalids from Florida. In the third quarter of 1832, twelve deaths from cholera Asiatica are reported, there having been thirty-four unequivocal cases, and many more in the premonitory stage. In the third quarter of 1834, there are reported forty-eight cases of the same disease, of which 2 proved fatal.

It is shown then, that with the exception of remittent fever, nearly all fatal cases arose from thoracic lesions. Excluding the deaths from epidemic cholera, and those from chronic diarrhea among the invalids from Florida, it is found that nearly all other cases were casualties, or

the direct effects of drunkenness.

The subjoined table presents the comparative agency of the seasons in the causation of disease in general—

TABLE exhibiting the ratio of sickness.

1		· · · · · · · · · · · · · · · · · · ·	
Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
9 first quarters - 9 second " - 9 third " - 7 fourth " -	2,625 2,784 3,196 1,998	1,676 2,134 2,945 1,708	638 767 922 855
Annual ratio -	2,651	8,463	3,190

On an average, every man has consequently been reported sick once in every three months and three-fourths.

### BELLONA ARSENAL.

### LATITUDE 37° 30' N.

This post is situated on the right bank of James river, 12 miles from Richmond. It occupies a position elevated upwards of 100 feet above the level of the river, with grounds sloping rapidly. It is about 200 yards from the river, a cultivated field intervening; and on each side is a ravine running nearly at right angles with the river, the eastern one having a small stream distant about 300 feet from the arsenal.

The diseases reported within the ten years are comprised in the fol-

lowing abstract-

ABSTRACT exhibiting a condensed view of the principal diseases at Bellona Arsenal, for a period of ten years.

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	98	<u>ന</u>			<u>.</u>				'				_	_		145
1838	•	•	٠	٠	•	•	'	•	'	<u>.</u>	_	•	•	'	•	•
1837		•	•	•	•	1	•	1	•	•	•	•		•	•	•
1836		•	•	•	•	ı	1	'	•		•	•	•	•	•	•
1835	•	•	•	•	•	•	ı	'	•	•		•		•	•	•
1834			•	•	•	•	'	,	•	•	•	ī	•	•	•	
1833	59	es		•	1	•	19	,	٠	•	_	_	4	ro	က	35
1832	44	63		-	1	-	4	•		64	•	•	က	4	•	17.
1831	55	13	•	70	•	'	10	6.5	•	-	_	•	cs	<b>CS</b>	es	38
1830	61	9	70	cs	•	<b>cs</b>	က	'	•	•	_		4	9	က	32
1829	46		60	~	٠	1	က	1	•	က	_	٠	4	•	•	23
-	264	4		9	•	24	19	ಬ	•	12	9	4	6	13	12	114
1838	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•
1837	•	•	•	•		,	•	•	•	•				•	•	·
1836	•			٠	•	•	•	•	•	•	•	•	•	•	•	•
1835				•	•			•	•	•	•	•	•	•	•	•
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1833	47	c,s			•	ı	10	_	•	•	-	<b>C</b> 3	•	က	•	19
1832	54		•	•	•		4	-	•	က	က	63	က	4	6	32
1831	55	-		4	•	13	က		٠	-	-	٠	'	4	•	27
1830	09			•	•	ro	63	es	•	C.S	-	•	က	<b>cs</b>	•	17
1829	48	-	٠,	C.S	'	က	•	-	,	9	•	'	က	•	က	19
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Years	Mean strength -	atormittont foror	June Hilling forer	ivenucient lever	Pyphus fever	Diseases of the respirat	Diseases of the digesti	Diseases of the brain an nervous system -	Propsies	Sheumatic affections	/enereal "	Hers and abscesses	Vounds and injuries	Phriety - "	All other diseases -	Total -
	Years 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838   1829 1830 1831 1832 1833 1834 1835 1836 1837 1838		- 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838		1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838    48 60 55 54 47 264 46 61 55 44 59	1829       1830       1831       1832       1835	reprinto-  1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1831 1832 1833 1834 1835 1836 1837 1838  1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1834 1835 1835 1836 1837 1838 1834 1835 1835 1835 1836 1837 1838 1834 1835 1835 1835 1835 1835 1835 1835 1835			ret	ret	ret	ver - 1	respirato-  3 5 13 6 18 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	trength	1829 1830 1831 1832 1834 1835 1836 1837 1838

ABSTRACT-Continued.

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316
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37
27
84
8
90
•
Total -

Under the class of diseases of the respiratory organs are comprised 46 catarrh, 6 pneumonia, 2 pleuritis, and 0 phthisis; under the head of digestive organs, 54 diarrhea and dysentery, 16 cholic and cholera, and 8 hepatitis; under the class of brain and nervous system, 6 epilepsy, and 5 mania a potu; and under that of venereal affections, 29 gonorrhea, and 12 syphilis.

As the total of deaths, according to the post returns, is 8, and the aggregate mean strength is 249, the annual ratio of mortality is  $3\frac{2}{10}$  per cent. Of the deaths, 6 are reported in the medical returns, viz. 1 remittent fever, 1 cholera morbus, and 4 from causes not designated,

being at the rate of  $2\frac{4}{10}$  per cent.

At this post the average of fevers of malarial origin is high, the annual ratio of intermittents being 44, and that of remittents 46 per In the third quarter of 1829, this station and its vicinity suffered much from bilious remittent fever. But one death, however, occurred among the soldiers. "The diseases, principally bilious remittent," says Assistant Surgeon Monroe, "have been of the most malignant type, requiring the most energetic treatment. If ever the patient has a third chill, the case is extremely doubtful, and if a fourth, it is hopeless. have had cases terminating in death in 12 and 24 hours after the first apparent symptoms of attack. These cases were ushered in with coma, and a bright saffron suffusion of the skin, and even of the nails. cases were of course hopeless from the beginning." It does not appear that any disease of similar malignity has since prevailed. On referring to the earlier history of this post, however, it is found that in the third quarter of 1825 intermittent and remittent fever prevailed, "as usual," to a very great extent. The locality was regarded as so very insalubrious, that a summer encampment was recommended. On the first establishment of this arsenal it seems to have been quite healthy, being then well wooded and sheltered, more especially on the side next the river.

The relative agency of the seasons in the production of disease in

general is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
5 first quarters	- 264	114	432
5 second "	- 265	145	547
5 third "	- 259	216	834
4 fourth "	- 208	123	591

It thus appears that every man, on an average, was reported sick once in every five months.

## FORT MOULTRIE.

## LATITUDE 32° 42' N., LONGITUDE 79° 56' W.

This post is situated on a sand island at the mouth of Charleston harbor, four miles from the city. Although there is much salt-water marsh in the rear of the island, no deleterious effects arise. The town of Moultrieville, exposed to the same agencies, is a resort in the summer season.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Moultrie, for a period of ten years.

		718	18	. ,	•4	168	7	21	13	62	38	506
	1838				•	•	•	, ,				•
	1837	•			•	•	•			•	. "	
SR.	9881	•			•	•	•			•		•
ARTI	1835	53	m ,		દર	6		• •	. 6	- 1	ငေး က	27
QU.	1834	08			11	13	•	. 63	o	7	es 4	48
SECOND QUARTER.	1832 1833 1834 1835 1836 1837 1838	170	4 8		21	20	œ	• က	<u>ت</u> و	10,	11	140
SEC	1832	99	, ന		œ	11	,	• 4	ကင		9 4	51
	1831	118	۱ ک		es	27	-	. 43	0	. 10	- 33	. 08
	1829 1830 1831	86	9 -		. 4	12	-	• 4	. 4	14	16	61
	1829	133	65 1-1		9	46	က	, m	es re	12	11	66
		756	18	<del>ი</del> –	122	11	<b>o</b> o o	× 82	14	78	21	470
	1838	•			•	•	•		•	•	٠.	,
	1837				•	•	•		•			1
R.	1836				•	•	•		•	•	• •	
FIRST QUARTER.	1835	48		1 1	7	-	•	. ന	. 01	2	1 1	19
QUA	1834	49			9	-	•			4	, ,	14
RST	1833	308	13		47	56	2	, 9	9 6	47	11	185
FI	1832	51			25	•	'		c: -	- 63	, 63	1
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	88		• •	7	4	•			· m	- 12	43
	1830	102	€ 1	es .	15	17	65 (	-1 50	ကဝ	22	15	107
	1829	110	თ ,	<b>-</b> .	15	22	Н	• 4	es e	\$ 10	- 6	
	•				ato-	tive	and -		•			•
		ngth -	nt fever - fever -	fever -	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and nervous system -	Dropsies Rheumatic affections	affections	Wounds and injuries	disconsistent in the second	•
	Years -	Mean strength	Intermittent fever Remittent fever	Synochal fever Typhus fever	Diseases of the	Diseases o	Diseases c nervous	Dropsies Rheumatic	Venereal affections	Wounds a	Ebriety - All other diseases -	Total

# ABSTRACT—Continued

		574	, 6: 	14	1		9	58	4	1 ,1	00	5	15	35	2	28	278
	1838	•		,	Ļ	•	•	•			•	٠	•	•	•	,	
	1837	•		•	•	•	•	•			•	•	•	•	٠	•	•
ER	1836	•		,	٠	•				•	•	•	•	•	•		•
ART	1835	52	,	•	•	•	ಣ	દર	-	•	•	•	-	-	•	10	12
ı qu	1834	09		9	•	•	00	14		•	•	-	_	20	દર	લ્ય	39
FOURTH QUARTER	1833	51	-	-	•	•	7	4	,		•	-	က	4	cs.	-	24
FOI	1832 1833 1834 1835 1836 1837 1838	181	9	4	•	•	288	53	-		c,	65	2	19	•	6	108
	1831	120		က	1		œ	c,	ç	) 1	4	-	_	ಛ	_	23	49
	1829 1830 1831	110	5		•	1	12	1-		•	cs	•	c,s	က	•	13	41
	1829	ı		•	•	•	•	•			í	_	.jr	oda	).I.(	PΝ	
		611	13	19	١.		64	217	o		56	7	30	49	20	89	521
	8838			'	'	•	•	•			•	•	•	•	•	1	'
	1837				•	٠	•	•		•	•	'	•	•	•		
pri pri	1836			'	•	•	,				•	•		1	1		
RTE	1835	53	6		•	•	જ	œ		1	ന	•	C.S	4	ÇŞ	က	27
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	57	-	٠,	•	•	4	91		'	es	•	cs.	_	65	•	288
IRD	833	79	6	. }-	•	•	9	24	c	۱ ۱	cs	က	cs.	က	က	9	9
TH	1832	54		•	•	•	ಣ	16			က	-	63	4	_	63	32
	1831	113	1	6	•	•	11	32			9		00	က	cs.	17	95
	1830	83	-	· 63	•	•	00	14	G	١ ١	-	-	70	14	•	30	182
	1829	172	'	•	•	•	30	107	-	# ·	6	દર	6	20	10	10	201
	•		1		1		piratory -				- su	•	- sə	ries -	•	•	
	Years -	Mean Strength	Intermittent fever	Remittent "	Synoehal "	T'yphus "	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and	Dropsies -	Rheumatic affections	Venereal "	Heers and abscesses	Wounds and injuries	Ebriety -	All other diseases	Total -

Under the class of diseases of the respiratory organs are comprised 233 catarrh, 30 pneumonia, 20 pleuritis, and 10 phthisis pulmonalis; under the head of digestive organs, 280 diarrhea and dysentery, 71 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 5 epilepsy, 2 apoplexy, 3 delirium tremens, and 13 nyctalopia; and under that of venereal affections, 22 gonorrhea, and 17 syphilis.

As the post returns include Charleston harbor, that is, Forts Moultrie, Pinckney, and Johnson, in the aggregate, it has been found very difficult, as in the case of Fort Columbus, to give the precise strength of Fort Moultrie. The total of deaths in the harbor of Charleston is 30, and as the mean strength for the same period is 1,148, the annual ratio of mortality is  $2\frac{\epsilon}{10}$  per cent. Of these, 20 are accounted for in the sick-reports from Fort Moultrie, viz. 7 phthisis pulmonalis, 3 chronic diarrhæa, 2 yellow fever, 1 apoplexia, 1 delirium tremens, 2 ebriety, 1 variola, 1 atrophia, 1 worn-out, and 1 casualty. As the mean strength for Fort Moultrie, for the same period, was 665, the rate of mortality is 3 per cent. As the principal hospital accommodations were at this post, it would seem, however, that many of those most seriously ill were brought from the neighboring fortifications.

The annual ratio of intermittent fever is remarkably low, being but 9 per cent., whilst that of remittent fever is 7 per cent. As yellow fever is endemic at Charleston, it has appeared several times at this post, but in no instance with much fatality. In the 3d quarter of 1834, there are 5 cases of febris icterodes reported, 2 of which proved fatal. Of these cases, 2 originated at Charleston and the other 3 at Castle Pinckney. On referring back to 1824 it is found that, whilst this disease prevailed with great malignity in the city, not more than 12 cases, none of which

proved fatal, appeared on the island in a strength of 70.

The comparative agency of the seasons in the causation of disease in general is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
7 first quarters - 7 second " - 7 third " - 6 fourth " -	756 718 611 - 574	407 506 521 - 278	538 705 853 484
Annual ratio .	665	1,712	2,574

Consequently every man, on an average, was registered on the hospital books once in a fraction less than every five months.

## FORT JOHNSTON.

LATITUDE 34° N., LONGITUDE 78° 05' W.

This post is situated in the town of Smithville, North Carolina, immediately on the Atlantic coast, three miles from the mouth of Cape Fear river. There are some marshy low lands within the distance of half a mile.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Johnston, for a period of ten years.

				FII	FIRST QUARTER.	QUA!	TER								SEC	SECOND QUARTER.	QU.	ARTI	SR.			
Years	1829	1829 1830 1831	1831	1832	1832 1833 1834 1835 1836 1837 1838	1834	835 1	836 1	837	8881		1829	1830	1831	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	1833	834	835 1	836 1	837 1	838	
Mean Strength	49	19	52	59	56	55	63			,	395	52°	57	55	99	55	54	99			.	389
Intermittent fever Remittent " Synochal " Typhus " Diseases of the respiratory organs Organs of the digestive Diseases of the brain and nervous system Dropsies Cherry Grections Weneraal " Ulcers and abscesses Ulcers and abscesses Wounds and injuries Ebriety All other diseases	4 ∞ 10 % 12	8.8.8 6 4.4.8	11, 11, 11, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,		п.п. ∞ и п.тиин.	8 b 6 80 m	o 0 0000	Feb. 3, embarked for Florida.			19 19 10 10 10 10 10 10 10 10 10 10 10 10 10	ന <sub>്</sub> , ,	01.01.01.00 · · · 01.00	ω ω φ4ω4⊣.π			0 4 8 .4888.1	7 8 4 .188.1.1				46 88 89 99 93 11 11 11 11 11 11 11 11 11 11 11 11 11
Total -	88	36	27	15	22	27	56				181	15	44	53	0%	20	88	42	<del>                                     </del>	<u>                                     </u>	<u>                                     </u>	198

ABSTRACT-Continued.

		588	32 6 6 1 1 1 1 1 1 1 2 3 3 3 3 3 3 3 3 3 3 3 3	124
	1838	, ·		•
	1837			•
ER.	1836	•		•
ART	1835	09	40. 00 0 1.1.10:2	33
FOURTH QUARTER	1834	09	10 05 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	24
JRT	1833	54	11	18
FOL	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	No report.	•
	1831	61		92
	1830	54	es.'' es es ''' es es '' =	23
	1829	-11	No report. , , , , report.	•
		326	63 20 6 6 6 6 6 9 9	194
	1838			•
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	••)	reiti ili illietií	
	1836	•		
THIRD QUARTER.	1835	57	50 4 1.88.1	32
2UA1	1834	53	8	31
8	1833	53	es4 ros	33
THI	1832	53	1 1 1 1 2 4 8 8 1	34
	1831	55	8	39
	1830	•	No report,	•
	1829	55	15	25
	1	•	rato-stive	•
	٠		ver - respi	•
	•	rength	ent fe I fever Gever of the of the of the is syst ic affect affect and abs	Total -
	Yeers -	Mean Strength	Internittent fever Remittent fever Synochal fever Typhus fever Diseases of the respirato- ry organs Diseases of the digestive organs Diseases of the brain and nervous system Dropsics Cherry and diseases Ucers and abscesses Ucers and abscesses Wounds and injuries Ebriety All other diseases	T
	Ye	Mea	Property of the Control of the Contr	

Under the class of diseases of the respiratory organs are comprised 67 catarrh, 1 pneumonia, 2 pleuritis, and 5 phthisis pulmonalis; under the head of digestive organs, 92 diarrhæa and dysentery, 28 cholic and cholera, and 3 hepatitis; under the class of brain and nervous system, 6 epilepsy, 3 mania a potu, 1 apoplexy, and 1 nyctalopia; and under that of venereal affections, 52 gonorrhæa, and 6 syphilis.

As the total of deaths, according to the Adjutant General's returns, is 15, and the aggregate mean strength is 400, the annual ratio of mortality is  $3\frac{1}{70}$  per cent. Of the deaths, 11 are reported in the medical returns, viz. I remittent fever, 1 continued fever, 1 chronic diarrhæa, 1 phthisis pulmonalis, 1 apoplexy, and 6 from causes not designated,

being 3 1 per cent.

The reports from this station are not given sufficiently in detail, to be enabled to state with much precision the peculiar character of morbid action. The annual average of intermittent fever is pretty high, being 46 per cent., whilst that of remittent fever is 10 per cent.

The relative agency of the seasons in the etiology of disease in gene-

ral is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.		
7 first quarters -	395	181	458		
7 second " -	389	198	509		
6 third " -	326	194	595		
5 fourth " ·-	289	124	429		
Annual ratio -	350	697	1,991		

Every man, on an average, has consequently been reported on the sick list once in every six months.

### OGLETHORPE BARRACKS.

### LATITUDE 32° 4' 56", LONGITUDE 81° 7' 9".

This post, in its present position, is in the suburbs of Savannah, which is distant about 12 miles in a direct line from the ocean. Situated upon a sandy plain, elevated about 40 feet above low-water mark, this city stands upon the southern side of the river of the same name. This ridge extends upwards of a mile along the river, terminating abruptly. At the depth of twenty or thirty feet, fine water is obtained. The city is bounded on the east and west by alluvial soil, called, in the language of the country, tide-swamp, being by the ordinary spring tides subject to inundation. It is consequently well adapted to the cultivation of rice. The city, divided by numerous and wide streets, intersecting each other at right angles, is open and spacious; and being planted with the Pride

of India, (melia azedarach,) the long continued heats of summer, moderated by the sea-breeze, prove less oppressive than in some more northern towns.

It is necessary to bear in mind that the station to which these statistics have reference, had a different locality from the present barracks. Situated about a mile south of the city, their vicinity abounded in rice-fields and marshes, some of which contained an intermixture of fresh and salt water.

ABSTRACT exhibiting a condensed view of the principal diseases at Oglethorpe Burracks, for a period of ten years.

		308	114 61 61 61 01 01 01 01 01 01 01 01 01 01 01 01 01	181
ER.	1838			•
	1837			
	1836			
ART	1835	49	11 8 6 841.81	28
On o	1834	55	5	32
SECOND QUARTER.	1833	63		31
SEC	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	62	88 4 4	42
	1831	•		
	1830	•		•
	1829	7.9	8	48
		393	33 11 11 11 12 13 13 13 13 13 14 15 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	185
	838			-
	837 1			,
نہ	1836	•	Jan. 29th, embarked for Florida.	
FIRST QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	46	en''' en en ''4es'⊓''	24
QUA	1834	55	ω κ ¬.¬α.κ	14
RST	1833		No report	•
II.	1832	59		53
i	1831	62	m m om	31
	1830	61		20
	1829	110	0 4	43
	-	1	rato-stive	٠
	Years	Mean Strength -	Intermittent fever Remittent fever Typhus fever Diseases of the respirato- ry organs Diseases of the digestive organs Diseases of the brain and nervous system Dropsies Rheumatic affections Cheers and abscesses Wounds and injuries Ebriety All other diseases All other diseases	Total -

ABSTRACT-Continued.

		150	36		4	92	es .	44	8, 12, 4, 6 6	100
SR.	1838	• 1	.0.		•	•				•
	1837	•		,	•	•				•
	1836	•			•	•		• •		
ART	1835	46	. 28		63	12	⊣ .	400	⊔ · 4 %	57
r QU	1834	46	လက		çş	12			4 . 1	92
FOURTH QUARTER	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	58	9 2		•	65	⊣.	1.	, co , co	27
FOL	1832	•			•	•		• •		1.
1	1831	•	J. 10 1		•	Ť,			1.1.1	•
	1830	•			•	•				1
	1829	•		• •	•	•				•
		220	70		က	38	40	~ 1.00	13	183
0	1838	,			•	•				1.
	1837	1.			*	•	1,0	• •		
F.	9881				•	•		٠,	,,,,	1.
THIRD QUARTER.	1835	46	56		•	9	4 63	cs 63	. c≥ . ⊢	101
QUA	1834	51	40		က	10	٠,	. 4	70 · 4	1
IRD	1833	29	6.9		•	9	٠.,		લ લ . લ	21
T.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	61	00 -1		•	9			.47.	36
	1831	•	0		•	•				1
	1830				•	•	٠.	, ,		1
	1829	•			•					•
		•			ato-	tive .	and			•
	•	•	ver	* *	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and nervous system	Rheumatic affections	Ulcers and abscesses Wounds and injuries Ebriety	•
	•	angth	ant fer		of the	of the	of the	ic affe	and in	•
	ars -	Mean strength	Intermittent fever Remittent "	Synochal Typhus	iseases of the	iseases o	Diseases of the bra nervous system Dropsies	Rheumati Venereal	Ulcers and abscesses Wounds and injuries Ebriety	Total
	Years	Mes	Inte	Syl	Dis	Dis	Dis.	Rhe	Ebr Wil	

It is necessary to remark that these statistics, in the third and fourth quarters, do not exhibit a fair expression of the ratio of diseases. prevalent and fatal did diseases prove in the summer season that the

abandonment of the post was generally demanded.

Under the class of diseases of the respiratory organs are comprised 38 catarrh, 5 pneumonia, 9 pleurisy, and 3 phthisis pulmonalis; under the head of digestive organs, 70 diarrhœa and dysentery, 22 cholic and cholera, and 6 hepatitis; under the class of brain and nervous system, 1 epilepsy, 2 mania a potu, and 1 coup de soleil; and under that of venereal affections, 16 gonorrhæa, and 15 syphilis.

As the total of deaths, according to the Adjutant General's returns, is 18, and the aggregate mean strength is 325, the annual ratio of mortality is  $5\frac{5}{10}$  per cent. Of the deaths, fourteen are reported in the medical returns, viz: five remittent fever, two phthisis pulmonalis, one bilious pleurisy, one cholera morbus, one epilepsy from ebriety, one spasms from drinking cold water, and three from causes not designated,

being at the rate of  $5\frac{2}{10}$  per cent.

The annual ratio of intermittents is 67 per cent., and that of remittents is 22; but these averages, inasmuch as the post was evacuated in the sickly season of 1829, 1830, and 1831, is below the actual result. In the third quarter of 1835, intermittent and remittent fever prevailed to a very great extent. The strength of the garrison, including women and children, was 73, of whom 69 were attacked by some form of fever. On referring back to the year 1828, it will be seen that this station was peculiarly unhealthy. In the third quarter, there occurred 23 deaths in a command of 95 men; and in the fourth, 18 deaths in a strength of 85. The total of deaths for the year was 52, besides 19 women and children. Remittent fever and dysentery were the most fatal diseases.

The relative agency of the seasons in the etiology of disease in gene-

ral is shown in the annexed table-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
6 first quarters - 5 second " - 4 third " - 3 fourth " -	. 393 308 220 150	185 181 183 110	471 589 832 733
Annual ratio -	268	659	2,459

Hence every man, on an average, has been reported sick once in a little less than every five months.

The investigation of each station along the coast of the Atlantic and its inlets, between the Delaware and Savannah rivers, having been completed, the results obtained, as a class, will be stated with a view to

general deductions.

The mortality of each post, and the relative degree of sickness, based on the statistics of ten years, are exhibited in the following table—

TABLE exhibiting the mortality of each post, and the relative degree of sickness.

-		Mean aggregate strength.	Deaths per Adjutant General's returns.	Deaths per medical returns.	Total of cases reported.	Ratio per 1,000 of mean strength, under treatment amundly.
Fort Delaware -	-	350	11	11	774	2,211
" McHenry -	-	596	12	10	1,831	3,076
" Severn -	-	385	16	12	1,199	3,114
" Washington	-	336	14	7	974	2,899
" Monroe -		2,651	106	85	8,463	3,190
Bellona Arsenal -		249	8	6	598	2,402
Fort Johnson -		350	15	11	697	1,991
" Moultrie -	-	665	30	20	1,712	2,574
Oglethorpe Barracks	•	268	18	14	659	2,459
Aggregate -	-	5,850	230	176	16,907	-
Ratio per 1,000	-	-	34*	30	•	2,890

The annual ratio of mortality, according to the medical reports, is 3 per cent., and according to the post returns,  $3\frac{1}{10}$  per cent. As in the preceding classes, the deaths from epidemic cholera (14 at Fort Monroe) have been excluded, and also in the medical returns, the deaths reported as drowned, frozen, and suicide. As the ratio per 1,000 of mean strength annually under treatment is 3,890, it follows that each man, on an average, was reported sick once in a little upwards of every four months. Judging from the ratio under treatment annually, as affording an index of the comparative extent of sickness, it appears that the highest average is presented at Fortress Monroe, and the lowest at Fort Johnston. As many invalids, however, were brought to Fortress Monroe from Florida, it is found, excluding these, that the ratio is lower than that of Fort Severn or McHenry.

This average, in connection with the ratio of mortality, affords an unerring criterion for estimating the comparative salubrity of a station. By itself, it is liable to lead to error, inasmuch as 10 cases of remittent fever may give more deaths than 500 of intermittent fever. Thus, although the ratio of mortality at Oglethorpe Barracks is the highest in this class, yet the number of cases treated presents only a medium average. This fact is more apparent in the statistics of the British army, embracing climates of the most diverse character. For example, in the West

<sup>\*</sup> The aggregate mean strength, according to the Adjutant General's returns, is 6,740.

Indies, the Jamaica command with 63 constantly sick is far more unhealthy than the windward and leeward with 87 constant ineffectives. In the former, four-fifths of the mortality is caused by fevers, which rapidly terminate in death or recovery. Thus, during the ravages of epidemic fever, the mortality may be very great without the average number in the hospital being materially augmented. In the windward and leeward command the mortality is six times as high as in the United Kingdom, although the extent of sickness, as shown by the number of admissions into hospital, is but twice as great.

In further illustration of the diseases of this class, the tabular views in regard to certain specific diseases having a close relation with season and climate, as well as the relative agency of the seasons in their etiology,

will be continued.

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# TABLE exhibiting the relative influence of the

DISEASES.		Fort Delaware.	Fort McHenry.	Fort Severn.	Fort Washing-	Fort Monroe.	Bellona Ars'nal.	Fort Johnston.	Fort Moultrie.	Oglethorpe Barracks.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
INTERMITTENT FEVER.	•		,										
First quarter - Second " - Third " - Fourth " -	-	7 23 139 47	71 101 245 123	20 45 85 54	20 31 78 62	61 104 244 108	4 31 44 19	19 46 63 32	18 18 13 9	32 41 70 36	440 981	6134 6183 6211 4871	
Annual ratio	-	216	540	204	191	517	98	160	58	179	2163	5850	370
REMITTENT FEVE	R.												
First quarter Second " - Third " - Fourth " -	-	16 40 -	1 5 25 3	16 65 11	16 19 9	10 46 383 153	- 8 69 26	1 8 20 6	7 6 19 14	5 44 10	126 684	6134 6183 6211 4871	3 20 110 48
Annual ratio	-	56	34	92	44	592	103	35	46	59	1061	<del></del> 5850	181
SYNOCHAL FEVER	ι.												
First quarter Second " - Third " - Fourth " -	-	11 2 -	2	21 18 30 24	3 - 5	2 3 4	6 9 3	4 2. - 1	3	1 - -	36 36	6134 6183 6211 4871	8 6 6 7
Annual ratio	-	13	2	93	11	9	18	7	3	1	157	5850	27
TYPHUS FEVER	•												
First quarter Second " - Third " - Fourth " -	-	1 1 3 2	- - -	1 1 1	- 1 -	1 - 2 1	1 1 1 1	- - 1	1 - - -	1 - -	4 2 7 5	6134 6183 6211 4871	0 7-10 0 3-10 1 2-10 1
Annual ratio	-	7	_	3	1	4		1	1	1	18	5850	3 2-10
DIARRHŒA AND DYSENTERY.	)												
First quarter Second " - Third " - Fourth " -	-	3 3 15 -	19 70 98 21	11 - 31 58 9	10 25 76 43	129 543 816 183	11 22 19 2	9 28 43 12	35 74 134 37	24 29 8 9	825 1267	6134 6183 6211 4871	41 133 204 65
Annual ratio	-	21	208	109	154	1671	54	92	280	70	2659	5850	455

seasons in the production of morbid action, &c.

DISEASES.	Fort Delaware.	Fort McHenry.	Fort Severn.	Fort Washing- ton.	Fort Monroe.	Bellona Ars'nal.	Fort Johnston.	Fort Moultrie.	Oglethorpe Barracks.	Total.	Aggregate mean strength.	Ratio of eases per 1,000 of mean strength.	Ratio exeluding Fort Monroe.
CATARRH AND IN- FLUENZA.					1								
First quarter Second " Third " Fourth "	27 11 1 16	79 45 7 80	39 17 6 40	43 28 3 42	591 407 299 677	14 2 1 29	42 5 5 15	98 33 47 55	25 11 - 4	559 369	6134 6183 6211 4871	156 90 60 197	102 45 23 97
Annual ratio -	55	211	102	116	1974	46	67	233	40	2844	5850	486	275
PNEUMONIA.													
First quarter - Second " Third " - Fourth "	1 - - 1	10 1 - -	6 2 4 6	3 1 - 3	132 53 10 54	4 1 - 1	1 - - -	6 6 10 8	2 1 1 1	65 25	6134 6183 6211 4871	27 11 4 15	9 4 5 7
Annual ratio -	2	11	18	7	249	6	1	30	5	329	5850	56	25
PLEURITIS.		_										-	
First quarter Second " Third " Fourth "	4 1 - 1	4 2		3 4 2 7	81 31 20 35	2 - - -	1 1 - -	7 11 1 1	4 3 - 2	56 30	6134 6183 6211 4871		11 8 3 9
Annual ratio -	6	30	17	16	167	2	2	20	9	269	5850	46	32
PHTHISIS PULMO- NALIS.						-							
First quarter Second " Third " Fourth "	2 4 - 5	-	3 3 2	1	8 6 3 4	- - - -	1 3 1	4 4 1 1	2 1	22 8	6134 6183 6211 4871	3 4 1 3	4 5 2 3
Annual ratio -	11	3	8	4	21	-	5	10	3	65	5850	11	13
RHEUMATISM.													
First quarter Second " Third " Fourth "	7 6 9 3	15 14	13 11	7	133 134 99 73	6	13	21 26	12 10 2 4	225 169	6134 6183 6211 4871		27 27 23 15
Annual ratio -	25	52	49	18	439	19	25	83	28	738	5850	126	93

Comparing this class with the mean results given in the three classes of the northern division, it is found that the ratio of intermittent fever is as 143 to 370, remittent fever as 26 to 181, synochal fever as 37 to 27, typhus fever as 2<sub>10</sub> to 3, and diarrhæa and dysentery as 269 to 455. It thus appears that diseases of malarial origin increase pari passu as the more southern latitudes are approximated. In the former, the ratio of intermittent fever is not more than two-fifths as high, and that of remittent fever not more than one-seventh as high, as in the latter. The average of diarrhæa and dysentery, which generally holds a close relation with the ratio of fevers of malarial origin, is also much higher. On the contrary, the average of synochal fever is lower in the class now under examination, whilst that of typhus fever presents little difference.

In this class of posts, the agency of the seasons in the causation of pulmonary diseases is strikingly obvious, not only in relation to catarrh and influenza, but to pleuritis and pneumonia. As respects catarrhal affections, the ratio of the third quarter is not one-third as high as the first or fourth; and in reference to pleuritis and pneumonia, the averages of the first and fourth quarters are respectively 21 and 16, whilst those

of the second and third, are only 11 and 8.

In the calculations of this class, the statistics of Fort Monroe, so far as pulmonary diseases are concerned, have been excluded, for reasons similar to those which led to the rejection of the results given by Fort Independence. The ratios of catarrh and influenza, compared with the eight other posts of the class, stand as follows—

	1st qr.	2d qr.	3d qr.	4th qr.
Fort Monroe,	225	146	94	339
Remaining posts,	102	45	23	97

It is thus seen that the means are from two to four-fold higher than those of the other posts of the class. Although the results are extraordinary, yet the influence of the seasons are strikingly manifest. The average mortality from pulmonary diseases is also about twice as high as at the remaining posts.

The total of deaths in each month, according to the post returns, is

given in the annexed table—

TABLE showing the number of deaths in each month.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Total of deaths in each month.	19	19	20	11	16	- 22	19	32	17	23	25	21	244

The 14 deaths from epidemic cholera, reported in this class, occurred 3 in July, 8 in August, and 3 in September.

#### II. THE INTERIOR POSTS.

### JEFFERSON BARRACKS.

LATITUDE 38° 28', LONGITUDE 90° 08'.

The class of posts to be now described stands, as already remarked, in the same relation to the last class, as the third class in the northern division (the one embracing the stations remote from the Atlantic and

the ocean-lakes) bears to the two others.

Jefferson Barracks are situated on the right bank of the Mississippi, 10 miles below the city of St. Louis. They occupy, at the distance of 150 yards from the river, a sloping ridge elevated about 100 feet above high-water mark. The surface of the surrounding country presents an undulating character; and, as it frequently rises into abrupt hills with deep ravines, the drainage is perfect. The soil is a rich loam based upon clay with a sub-stratum of limestone. The country around, with the exception of the public grounds, remains covered with a heavy growth of timber. As to mineral productions, indications of lead are common, and stone-coal is found in abundance. In Illinois, on the opposite side of the river, which is here about one mile wide, is the "great American bottom," which is said to be 60 miles long, and on an average seven miles wide. On the river, it is skirted with forests varying in breadth from a half to one mile, whilst the remaining space to the high ground consists principally of prairie, covered with a luxuriant growth of grass. This prairie is chequered with numerous lakes; and as the evaporation of the water, during the latter part of summer, exposes the surface of the subjacent soil, a fruitful source of disease is engendered. These bottom-lands are but partially cultivated.

At the St. Louis Arsenal, the annual amount of rain, on an average

of two years, is 24.12 inches.

The diseases reported within the ten years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Jefferson Barracks, for a period of ten years.

		2907	183 49 7 - 7 174 174 835 835 71 28 71 28 71 28 71 28 348	2172
	1838		No permanent command.	
	1832 1833 1834 1835 1836 1837 1838	319	23 29 29 10 10 10 10 10 10 10 10 40	348
FER.	1836	38		82
SECOND QUARTER.	1835	468	39 5 1 16 50 50 1 17 17 44 44 63	267
1D Q	1834	424	38 33 205 15 59 119 31	410
CON	1833	317	16 8 28 2 - 7 - 4 13 24 - 6 - 2 - 3 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3	558
SE	1832	127	4-11 0 0 10-1107	25
	1829 1830 1831	:	Ио тероте	•
	1830	809	113 27 27 47 136 3 3 3 111 62 66 66	474
	1829	909	50 9 	398
		2942	94 47 3 451 311 28 9 9 62 63 64 64 101 351	2088
	1838	•		•
	1837			1.
is is	1836			•
FIRST QUARTER.	1835	436	25 25 26 26 26 26 - 26	248
QUA	1834	457	34 3 3 114 114 16 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	412
RST	1833	259	25 25 23 23 30 30 10 10 10 10 10 10 10 10 10 10 10 10 10	120
FI	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	295	111 1125 1125 1125 1125 1125 1125 1125	181
	1831	406	4 3 3 3 1 10 12 12 12 20	281
	1830	657	25 - 25 - 108 102 - 20 20 20 20 16 86 86	462
	1829	432	24 1 1 34 7 7 7 7 7 7 175 6 1775 41 86	384
	•		pira-stive and	'
			ver	•
		ength	of the system of the system of the system of the system of abs and i disea	•
	Years -	Mean strength	Intermittent fever	Total
	Yea	Me	International Property of the	

		3098	233	137		,	477	089	45	56	81	44	49	375	74	482	2721
	1838		,	•	•	•	•	•	•		•	•	•	•	,	•	,
	1837	•		•	•	•	•	•	,	•	•	•	•	1	•	•	'
ER.	1836	33	9	ÇŞ	•	•	12	cs.	•	,	ςŧ	က	•	-	•	4	32
ART	1835	489	16	3	•	•	83	17	20	-	00	12	10	39	10	48	193
n <b>o</b> 1	1834	419	33	63	•	•	22	58	1	-	œ	4	7	41	42	131	354
FOURTH QUARTER.	1833	468	64	c	•	•	97	223	22	91	17	œ	4	56	•	107	619
FOL	1829     1831     1832     1833     1834     1835     1836     1837     1838	254	œ	13	•	•	33	105	10	65	7	લ્ર	12	28	•	6	258
	1831	274	30	42	•	•	85	47	•	9	•	1	c	_	7	53	252
	1830	202	40	28	•	•	103	62	2	•	19	15	14	84	15	23	454
	1829	099	36	40	•	•	66	149	က	1	20	•	15	95	•	102	
		3824	582	292	1	1	190	1431 149	38	10	101	77	93	400	185	593	3994 559
	1838	1	•	•	1	,		•	•	•	1	1	•	'	•	•	
	1837	678	78	2	•	'	39	376	ಣ	_	25	က	6	69	16	43	299
2:	1836	53	4	C.S	,	•		00	•	-	63	_	•	9	•	,	24
THIRD QUARTER	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	435	98	12	1	•	-	45	1	_	1	က	œ	39	35	37	269
QUA	1834	368	62	13	•	_	15	132	,	•	68	-	6	34	20	98	405
IRD	1833	583	103	37	_	•	47	328	7.0	20	7	38	35	49	53	51	732
H.T.	1832	141	34	30	•	•	13	138	•	•		2	9	20	•	7	255
	1831	364	99	62	1	'	32	92	ro	-	20	10	c.s	40	4	24	342
	1830	655	98	89	•	•	19	157	18	•	88	œ	19	113	20	133	720
	1829	571	63	42	•	•	24	171	9	_	16	9	œ	30	-	212	580
	•	'		•	•	1	-ote-	stive -	and .	•	•	•	•		٠	•	•
	Years	Mean strength -	Intermittent fever -	Remittent fever -	Synochal fever -	Typhus fever	Diseases of the respiratory organs -	Diseases of the digestive organs	Diseases of the brain and nervous system -	Dropsies -	Rheumatic affections	Venereal "	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases -	Total -

Under the class of diseases of the respiratory organs are comprised 913 catarrh and influenza, 86 pneumonia, 211 pleuritis, and 49 phthisis pulmonalis; under the head of digestive organs, 2,644 diarrhæa and dysentery, 244 cholic and cholera, and 4 hepatitis; under the class of brain and nervous system, 27 epilepsy, 1 apoplexy, 80 delirium tremens, and 6 nyctalopia; and under that of venereal affections, 93 gonorrhæa.

and 80 syphilis.

As the total of deaths, according to the post returns, is 159, and the aggregate mean strength is 3,313, the annual ratio of mortality is  $4\frac{8}{10}$  per cent. Of the deaths, 137 are reported in the medical returns, viz. 8 remittent fever, 1 intermittent fever, 18 phthisis pulmonalis, 8 pneumonia, 1 pleuritis, 1 homoptysis, 2 gastro-enteritis, 3 dysentery, 6 chronic diarrhoa, 24 cholera epidemica, 1 stricture of the intestines, 1 rheumatism, 1 dropsy, 1 scorbutus, 10 mania a potu, 19 ebriety, 1 apoplexy, 1 atrophia, 4 worn-out by obscure chronic affections, 1 ulcer, 1 caries of the maler bones, 1 sudden, 1 gun-shot wound, 2 casualties, 2 suicide, and 18 from causes not designated. Excluding the cases of epidemic cholera and suicide, the annual ratio of mortality is  $3\frac{1}{10}$  per cent.

What a commentary is here afforded upon the abuse of inebriating potations! From the direct effects of this moral pestilence 29 deaths are reported, whilst the mortality from phthisis pulmonalis, pneumonia, and epidemic cholera, making 50 deaths, was owing chiefly to the same cause. "To this last cause," (ebriety,) says Surgeon Beaumont, in 1834, "may be traced the origin, either directly or indirectly, of more than three-fourths of the diseases and injuries of this command." And this remark is equally applicable to every military station; a conclusion

abundantly established on every page of these statistics.

The diseases of this post are not of a character to require much comment. From fevers there are only 8 deaths reported. The annual average of intermittent fever is 34 per cent., and that of remittent 16. The prevalence of fevers of malarial origin, according to Surgeon De Camp, depends much upon the course of the winds. Whenever, in the months of August and September, easterly winds prevail, traversing the "great bottom" on the opposite side of the river, intermittents become

rife.

"The position of these barracks, with regard to health," says Surgeon De Camp, "is as good as any that could have been selected upon the bank of this river; but from an acquaintance with the diseases of this country for more than 22 years, I am enabled to state that fewer cases occur, and when they do they are much milder in their character generally, when removed from the river bank. This has been strikingly exemplified during the present season. At least three-fourths of the persons at this post have had fever, and at the distance of one mile from the river in the immediate vicinity, there has scarcely been a single case, which I attribute to the distance and the intervention of a dense forest. I made the same observation when I practised medicine in St. Louis a few years since. The highest grades of fever were at that time common in town, when, at the same time, the diseases in the country, and at the distance of a few miles only, were mild intermittents."

In the third quarter of 1832, 20 cases of cholera asphyxia are reported; one of which only terminated fatally. In the first month of the following quarter, there were 6 cases and 5 deaths from the same disease. In the third quarter of 1833, there are reported 3 cases and two deaths. In 1834, spasmodic cholera again appeared, there being in the second quarter 24 cases and 7 deaths, and in the third 10 cases and four deaths. Almost every one in the command was affected with diarrhæa, which often terminated in cholera. In 1835, in the second quarter, are reported 7 cases and 4 deaths, and in the third quarter, 1 case and 1 death. This was the last appearance of this mysterious epidemic.

In the fourth quarter of 1834, a remarkable case of tabes mesenterica is reported by Assistant Surgeon Hughey. The patient (a soldier) lingered five months in the hospital, during which period he underwent an extraordinary degree of attenuation; from being a man, who, in the vigor of health, weighed 170 pounds, he was reduced to the weight of

64 pounds.

The following table exhibits the comparative agency of the seasons in the etiology of disease in general:

TABLE exhibiting	g the ratio	of sickness.
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Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated annually.
o mot quarters	2,942	2,088	710
	2,907	2,172	816
	3,824	3,984	1,042
	3,098	2,721	878

Every man, on an average, has consequently been registered on the sick list once in every three and a half months.

#### FORT GIBSON.

## LATITUDE 35° 47', LONGITUDE 95° 10'.

This post is situated on the east bank of the Neosho or Grand river, in Arkansas, and is distant about 425 miles north of the Gulf of Mexico, measuring from a point near the mouth of the Sabine river. The site of the fort is about 100 yards from the banks of the Neosho, and three miles from its mouth. About a mile and a half to the southwest, towards the Arkansas river, is a lake surrounded by marshes; and, as its level varies little from that of the fort, the drainage of the latter is consequently very defective. As the fort was originally located in a canebrake, the soil partakes in a very high degree of what is designated, in the language of the country, "river-bottom land." It is skirted on three

sides by elevated prairie, about four miles in extent, environed by a chain of hills. The opposite side of the river presents a canebrake, extending a mile above and below the fort, interspersed with lakes and marshes towards the southwest. The soil is of a character admitting of the most prolific cultivation. Indian corn is the staple commodity; and

of mineral productions the principal are coal and salt.

As regards thermometrical observations, it is found that the mercury rises higher at this post than at any other in the United States. The mean annual quantity of rain, based on three years' observation, is 30.64 inches—one of the lowest averages among 28 posts at which observations upon the rain-gauge have been made. The prevailing winds, which are southerly from the Gulf of Mexico, traverse the marshes and lakes above described.

It thus appears that all the circumstances most conducive to the evolution of malaria obtain. The soil is composed of a rich alluvion; solar heat is of the most intense character; and the quantity of rain, although adequate to the maintenance of a certain degree of moisture, is not sufficient to overflow the low lands during the summer season.

The diseases reported within the 10 years are comprised in the

following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Gibson, for a period of ten years.

		3824	804	∞ .	332	881	23	96	43	421	211	423	3419
	1838	669	311		52	149	5	21	81 2	59	13	84	735
	1837	443	66	1 1	5	105	4	, 9	9 8	333	15	25	315
ER.	1836	305	81	1 1	30	26	4	2,4	4 à	34	13	19	334
ART	1835	505	109	, ,	38	145	1.5	, <u>.</u> .	40	38	ಣ	55	444
o ou	1834	324	52	1 1	19	134	4	14	7	33	12	46	
SECOND QUARTER.	1833	429	20	1 1	53	89		ન દર	ı ıć	25	39	89	268 342
SEC	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	434	52	٠.	7.4	62		ન દર	• 6	72	55	17	372
	1831	220	38		47	64	, ,	٠,		45	24	39	265
	1830	360	31	. ,	6	21	eo -	1 4	<u>~</u> ℃	64	30	20	228
	1829	205	11	' '	25	19	- 0	S C5	es re	180	10	20	
		3978	599	11	795	354	27	139	58	449	113	427	3153 116
	1838	557	140	۰.	88	65	18	15	13	99	сs	2.9	492
	1837	282	17	1 1	38	33	es ,	∞	91	25	12	ū	167
F.	1836	653	177	1 05	121	63	ಣ	43	es 10	94	15	119	685
FIRST QUARTER	$1829 \ 1830 \ 1831 \ 1832 \ 1833 \ 1834 \ 1835 \ 1836 \ 1837 \ 1838$	472	1111	σο <b>,</b>	252	55	ÇŞ L	13	es r	19	6	53	538
QUA	1834	484	36		54	30	1	15	4 -	44	20	37	247
RST	1833	482	29	1 1	73	14		- 01		46	•	20	259
FI	1832	373	36	1 1	74	34		1 00	es 5	26	16	39	285
	1831	229	20	1 1	30	24	ı	12		27.2	6	28	156
	1830	272	19	1 1	42	35	_	13	9	20	22	53	230
	1829	174	14	ο <b>?</b> ,	\$5 53	63	•	, 68	10	222	œ	4	94
	'	•		1 1	pira-	stive	- and	1 1	1	1 1	,	1	•
	•		ever "	3 3	he resp	ne diges	e brain tem	- fections	3	ninries		ases	
1	'	ength	tent fe	÷	of t	of th	of thus sys	ic aff		and an	,	r dise	
	Years -	Mean strength	Intermittent fever	Synochal	Discases of the respira- tory organs	Diseases of the digestive organs	Diseases of the brain and nervous system	Dropsies - Rheumatic affections	Venereal	Wounds and injuries	Ebriety	All other diseases	Total

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		4407	1493 228 46 1	339	22 13 85 7	148 401 200 305	4087
	1838	597	297 13	53	8 8 E	22 48 15 61	658
	1837	654	305 54 23	49	9 16	22 44 2 82	702
ER.	1836	126	47	e 9		00000	104
ART	1835	559	255 29 -	26	2.2	28 63 60	597
FOURTH QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	504	195 29 7	39 196	5 15	22 66 39	567
JRTE	1833	213	150 41	6	10	26 13 16	310
FOI	1832	691	34	74	ങ • എറ	3223	406
	1831	254	63	42	= -	69 89 17	320
	1830	245	93	22 22	1 110-	24 27 27	210
	1829	265	54	39	1145	23 23 15 21	213
		4047	1990 671 89 2	1268	27 27 28 78	390 390 194 750	5828
	1838	645	23	10	17	173 73 84 30 115	
	1837	728	536 59 38	18	7 10 11 11	31 38 17 17 55	1089 985
R.	1836	135	54 35	7	<b>⊣</b> , ,	. oo oo r	140
THIRD QUARTER	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	409	497 128 2	26	ss – ∞	20 30 41	828
QU/	1834	491	110	13	10	20 20 11 23	433
IIRD	1833	439	135 79	22 352	- 32 4 -	20 9 119	752
TE	1832	447	104 36 -	168	5 13 9	17 106 94 230	790
	1831	242	133 18 28	15	14	36 12 31	341
	1830	253	23 136 21	. 27	2- 0	40 18 24	301
	1829	258	29 6 	5 11	1 85 85 -	1 7 - 105	169
	,			ato-	and -		'
	,	Mean strength -	Intermittent fever - Remittent fever - Synochal fever - Typhus fever -	ry organs	Diseases of the brain and nervous system - Dropsies -	Venereal allections Ulcers and abscesses Wounds and injuries Ebriety All other diseases	Total
	Years	Mean	Intern Remiti Synoc Typhu	ry orga Diseases o	Diseases nervou Dropsies Rheumati	Veneres Ulcers a Wound Ebriety All othe	

Under the class of diseases of the respiratory organs are comprised 1,106 catarrh, influenza, and acute bronchitis; 259 pneumonia, 198 pleuritis, and 42 phthisis pulmonalis. Under the head of digestive organs, 2,236 diarrhæa and dysentery, 339 cholic and cholera, and 30 hepatitis. Under the class of brain and nervous system, 14 epilepsy, 3 apoplexy, 34 mania a potu, and 13 nyctalopia; and under that of venereal affections, 127 gonorrhæa, and 78 syphilis.

It is necessary to observe that the above abstract, both as regards the diseases and the mean strength, includes the dragoon camp at Fort Gibson. As the sick report of the dragoons for the first quarter of 1837 is wanting, a deduction of 152 from the actual strength has been made. As the sick of the "mounted rangers," who were at this post in 1833–'4, are not included, so has the mean strength been correspondingly reduced.

As the total of deaths, according to the post returns, is 277, and the aggregate mean strength is 4,269, the annual ratio of mortality is  $6\frac{5}{10}$  per cent. Of the deaths, 210 are reported in the medical returns, viz: 44 remittent fever, 5 intermittent, 4 continued, 2 mucous, and 2 typhus fever, 26 phthisis pulmonalis, 11 pneumonia, 1 pleurisy, 1 hæmoptysis, 1 serous effusion into the lungs, 1 cynanche trachealis, 2 rubeola, 1 tonsilitis, 7 dysentery, 2 diarrhæa, 1 gastro-enteritis, 18 epidemic cholera, 3 apoplexy, 1 phrenitis, 1 arachnitis acutus, 1 convulsions, 1 neuralgia pedis, 2 delirium tremens, 6 ebriety, 2 anasarca, 5 erysipelas, 5 obscure chronic visceral lesions, 1 poisoned by opium, 2 wounds, 1 sudden, 1 homicide, 2 suicide, 3 submersion, 2 casualties, and 45 from causes not stated. Excluding, as before, the deaths from epidemic cholera, homicide, suicide, and submersion, the annual ratio of mortality is  $4\frac{5}{10}$  per cent.

Fevers of malarial origin are more rife here than at any other station. The annual average of intermittent fever is 120 per cent., and that of remittent fever is 25 per cent. In the first and second quarters, the averages are comparatively low. Although the ratio of these fevers is about thrice as high as at Jefferson barracks, yet it is found that the annual ratio of diarrhæa and dysentery at these two posts bears an

inverse proportion, being as 55 to 80.

In the third quarter of 1830, the ratio of intermittent fever is very high. "Though the subjects of fever," says Assistant Surgeon Pitcher, "have been numerous at this station during the past quarter, the cases generally have been less violent in their character than those I have been accustomed to see in the lower parts of Michigan Territory." The 21 cases placed under the head of synochal fever were reported as ephemeral. In the report of the fourth quarter, in which there was no death, Surgeon P., with his usual discrimination, remarks as follows—"The five cases reported under the head of remittent fever, were attended with a great degree of prostration and dry tongue, still they differed so much from the cases of typhus which I have seen at Fort Brady, that I preferred retaining them in their present position. One of the cases of pneumonia also exhibited some of the phenomena of typhus." In the report of the third quarter of 1831, the same officer observes, that "the weather, during most of the quarter, has been unusually cool, while

diseases have been more virulent in character than is common to this region. I have never before observed such general and striking indications of gastric and intestinal irritation, in conjunction with stupor and muscular prostration. Repeated venesection has been my chief remedy. Of the 46 cases of synochus and remittent fever, five proved fatal. One died suffused with a yellow tinge, and the others of congestions. formed before being sent to the hospital, which I could not afterwards remove." In the following quarter, in which no death is reported, he says—"Since the appearance of synochus, in all cases, the blood when drawn from a vein has been remarkably dark, no matter in what stage of fever or under what circumstances it was abstracted." Again, in the first quarter of 1832, he remarks—" The same tendency to congestion in all cases attended with fever, which characterized the diseases of last quarter, still continues. As usual, I have trusted very much to the lancet in the management of these affections. The plan of treating pneumonia adopted by M. Laennec, (with large doses of tart. ant.,) I find to be too tardy for this region." In the second quarter, it is remarked by Dr. Pitcher, now surgeon, that "the cases of diarrhea were mostly among the recruits, many of whom were suffering from it when they arrived. Intermittents have been mild; still they are best managed by free depletion. The sulphas quinine I seldom use until the paroxysms are broken up." In the third quarter of this year, 9 deaths occurred. Of these, 4 (2 directly and 2 indirectly) arose from rubeola, which prevailed as an epidemic, 54 cases being reported. In one of the fatal cases it supervened upon remittent fever, in which case the eruption would appear with the hot stage and disappear on its decline. "Our diseases this season," says Surgeon Pitcher, "have been comparatively mild, the fatal issue in all cases, except the one which was ushered in with an orange state of the skin, appearing to depend upon contingencies having no relation to the prevalent epidemics, but influencing their mode of terminating. You will remark that the cases of 'diarrhea' are numer-Many of these, after having been entered thus upon the register, were followed up by fever and with dry tongue, of which they seemed to be the forming state."

In the third quarter of 1833, there are reported 150 cases of epidemic cholera, 16 of which terminated fatally. Besides these, there were 20 cases in the families about camp. The total of cases this quarter was much augmented by the hardships endured by two detachments sent out in May—one in pursuit of some Pawnees, and the other to cut roads for the Choctaws. In the last quarter of this year, Surgeon P. observes, that "dysenteric cases in several instances have assumed the character of tertians, that is, the patient would have his well day as in an intermittent of that type." This disposition in many diseases to exhibit a paroxysmal and strictly periodical character has been quite recently noticed by Surgeon W. L. Wharton. "As a result of the general prevalence of malaria," he says, "it may be stated that most of the diseases occurring at this station partake of the intermittent character, embracing pleurisies, cholera morbus, dysentery, diarrhæa, rheumatism, hæmorrhage, &c." The strict periodicity of these affections, and their

subjection to the same remedies which are found to arrest the course of intermitting fever, imply a close alliance, if not a common origin.

The year 1834, the last quarter of which was marked by extraordinary fatality, comes now under consideration. According to the Adjutant General's returns, the annual mean strength was 485, and the total of deaths 103, the ratio of mortality being  $21_{10}$  per cent. In the first quarter, two deaths are reported; and, in the second, three deaths; 53 cases from the dragoon regiment having been received into the hospital in the month of June. In the third quarter, 11 fatal cases are reported. "Of these," says Assistant Surgeon Wright, "four died of phthisis pulmonalis, one of apoplexy, and 2 were of the dragoon regiment sent into the hospital in a moribund state. Assistant Surgeon Welsh, and Lieutenants West and Eastman, who died at this post during the quarter, are not included in this report." In the fourth quarter, 47 deaths are reported, 25 in the hospital of the post proper and 22 in that of the dragoon camp. It thus appears that, for the whole year, 37 deaths remain unaccounted for in the quarterly sick reports. It is to be regretted, too, that the reports given are defective in precise details, & Two of the attending physicians, Hales and Welsh, having sickened and died. In the report from the dragoon camp, the simple fact is stated that 22 died, whilst that of the post proper merely shows that 25 deaths arose from fevers and their sequelæ. It is necessary to add, that in the catalogue of the causes of mortality, 25 have been classed as remittent fever, and the rest placed under the head of those the causes of which are not specified. The following extracts, however, from the report of Surgeon S. G. J. Decamp, dated Fort Gibson, Dec. 31st, 1834, throw much light upon the subject-

"The mortality, although great, has not been more so than we had reason to anticipate from the malignant character of the disease early in the season. The deaths have been confined entirely to those who were taken sick previously to the 30th of September. They were all originally fever cases, terminating either in dropsy or dysentery. Some have died of excessive ptyalism from mercury, taken before or soon after their return to this post. Post mortem examinations of dysenteric cases have shown great engorgement of the mesentery, inflammation of the mucous membrane of the bowels, and an enlarged and engorged state of the liver and spleen. In the treatment of these cases, much perplexity and many contradictory indications were presented. Tonics and stimulants seemed often to be imperiously demanded, but the irritability of the bowels, with red tongue, rendered them inadmissible. The ptyalism, which had continued in some cases for many weeks, would, after disappearing for a time, burst forth spontaneously, and hurry the victim to the grave with a dreadful destruction of the soft parts about the mouth and the cheeks. Opiates, absorbents, diaphoretics, and demulcents, with tonics when admissible, have been the remedies relied upon, sometimes with good effect, but too often, I regret to add, with no advantage whatever. Intermittents are still frequent, but they generally yield readily to the use of quinine.

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"I am aware that there is great prejudice against this post on account of its supposed unhealthiness; but I am far from believing that the troops who were in the prairies last summer would not have been sick had they gone to any other post. On the contrary, I am of opinion that the seeds of disease were sown before their arrival at this post, and that it only required an exciting cause to bring them into action; a cause found in the repletion and other indulgences which a regular military post affords to soldiers. As an evidence of this I would state, that the troops left at Fort Gibson during the summer were not more sickly than usual at that season; and I believe that it will be found, on examina-

tion, that the mortality was less than in other years.

"It must be confessed, however, that the location of Fort Gibson is not the best that could have been made, although, under the circumstances of its first establishment, it was perhaps a judicious selection. It is built upon a small eminence adjoining the bottom-lands on the Neosho or Grand river, having extended cane-bottoms and stagnant lakes in its vicinity. Unfortunately, too, the relative position of the fort with respect to these low grounds is such, that the prevailing winds in summer bring their miasmata directly over the fort. While upon this subject, I would also call your attention to the condition of the quarters, which I consider not well calculated to preserve the health of the troops. Built of perishable materials, and many of them in the most temporary manner, with small and illy ventilated rooms, the roofs are now worn out, and many of the logs decayed."

It is thus seen that much of the disease ascribed to this post may be fairly attributed to causes operating in other localities. The dragoons, for example, were frequently on detached service. Thus, as in the third quarter of 1835, about three-fourths of this squadron were on this kind of duty, on Grand Prairie, on Canadian river, about 150 miles from Fort Gibson, up to the 6th September, it is found that the cases of intermittent and remittent fever were furnished mostly by this detachment.

In the report of the fourth quarter of 1835, Assistant Surgeon L. C. McPhail speaks thus—"The diseases that prevail here are bilious congestive, remittent and intermittent fevers, during the summer and fall; pneumonia, especially pneumonia biliosa, pleurisy, and catarrh during the winter; tertian agues during the spring; and mucous fevers and bowel disorders all the year round. In the treatment of the affections which prevail here, calomel will not answer the expectation of its advocates. Its moderate use is sometimes beneficial; but when given in an unqualified dose of more than 10 grains, or repeated, it often does more harm than good. In the treatment of catarrhal affections, particularly those implicating the pulmonary structures, I find antimonials more efficient than blood-letting, though sometimes we conjoin them. Blood-letting is not often required here in my practice, as the diseases are mostly congestive, and seldom inflammatory."

In his report of the third quarter of 1837, the following remark is made by Assistant Surgeon Bailey—"This post, as is usual in this quarter, has been unhealthy. The fevers have, in many instances, been attended with alarming and violent symptoms—congestions of the brain,

lungs, stomach, and bowels. The treatment in the first stages, has been general and topical bleeding, cold acid drinks, and irritating and warm applications to the extremities; and, as soon as a remission or intermission occurred, large and frequently repeated doses of quinine. No death, however, has taken place from fever. The adjacent country has been unhealthy, and many have died. The common practice of administering large doses of calomel in the fevers of this country proves,

in my opinion, unsuccessful."

The mortality from phthisis pulmonalis at this post makes one-eighth of the total of those deaths the causes of which are reported; and at Jefferson Barracks, the proportion is nearly the same. Comparing the first quarter with the third, it is found that diseases of the respiratory organs are more than six times as high in the former; and making the same comparison in respect to intermitting fever, it is found that the third is three times as high as the first. It is shown, then, that the diseases of the respiratory organs are twice as much under the influence

of the seasons as intermittent fever.

Viewing all the facts bearing on the question of the comparative salubrity of this station, it would seem that its unhealthfulness has been somewhat exaggerated. At the same time, it may be safely assumed that it is the most insalubrious post now permanently occupied. Circumstances pertaining to its medical topography are sufficient to explain the statistical results obtained. Situated about three miles from the junction of three streams, the Neosho and the Verdigris with the Arkansas, it consequently occupies a spot originally formed of the alluvion of these streams. In the immediate vicinity are extensive cane-brakes and miry lagoons, whilst the prevailing winds in the summer are from this point of the compass, wafting their exhalations over the fort. Heat, another agent regarded as essential in the production of malaria, is found more intense here than at any other post in the United States. The mercury, perhaps, every year rises above 100° fahrenheit; it not unfrequently rises to 106 and 110°; and on the 15th August, 1834—the season of the high mortality—the thermometer, as observed by Assistant Surgeon Wright, indicated 116° in the shade.

The mortality of each year, as exhibited in the subjoined abstract, condensed from the Adjutant General's returns, shows no extraordinary fatality, with the exception of the year 1834. As the high average of this year is limited to the fourth quarter, and as the troops returned from the prairies sick, the inference that the causes of disease were of a general character, and not confined to the locality of Fort Gibson, is at least warranted; and this opinion is confirmed by the fact that the mortality in 1834, at Jefferson Barracks and Forts Towson and Jesup, is above

the mean average-

TABLE exhibiting the ratio of mortality during a period of ten years.

	Years.	Mean strength.	Total of Deaths.	Ratio of deaths per 1,000 of mcan strength.
	1829	226	5	32
	1830	258	6	23
	1831	236	15	64
	1832	486	19	39
	1833	514	32	62
1	1834	485	103	212
	1835	570	39	68
1	1836	305	4	13
	1837	565	36	64
	1838	624	18	29
Agg	regate -	4,269	277	65

Comparing this result with the ratio of mortality in the 1st regiment of Infantry at Baton Rouge, from 1819 to 1824 inclusive, it is found that the latter is more than three-fold higher. The ratio for the six years at Baton Rouge is nearly 21 per cent., and that of 1822, the most fatal year, is almost 26 per cent.

The comparative agency of the seasons, at Fort Gibson, in the causation of disease in general is shown in the following tables—

TABLE showing the number of deaths in each month.

	-												
	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Total of deaths in each month.		16	9	3	11	13	26	26	59	46	28	20	277

TABLE showing the relative agency of the seasons in the production of disease in general.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
10 first quarters 10 second " -	3,978 3,824	3,153 3,419	792 894
10 third " -	4,047	5,828	1,440
10 fourth " -	4,407	4,087	927
Annual ratio -	4,064	16,487	4,057

Every man, on an average, has consequently been reported sick once in about every three months.

### FORTS SMITH AND COFFEE.

FORT SMITH-LATITUDE 35° 22', LONGITUDE 94° 10'.

As these two posts, which have been successively occupied, are not more than ten or twelve miles apart, the statistics have been united under one head. Fort Smith having been abandoned for several years was re-established on the 22d March, 1833, by a company of the 7th Infantry. It was evacuated on the 16th June, 1834, and on the following day Fort Coffee was established at Swallow Rock, in the Choctaw Nation. Fort Smith was re-occupied on the 27th July, 1838, and Fort Coffee was finally abandoned on the 19th October of the same year. Both posts are upon the Arkansas river; Fort Smith, now a permanent station, being situated at the mouth of the river Poteau, directly on the western boundary of the State of Arkansas. These statistics, therefore, which cannot be regarded as affording precise results in reference to a special locality, are valuable only as indicating the character and general ratio of disease in this region.

Fort Smith is bounded immediately on the west by the Arkansas river and the Cherokee Nation; on the south, by the Poteau river and the limits of the Choctaw Nation; and on the east and north, by the State of Arkansas. Lakes and marshes abound in every direction, some being subject to be inundated by the Arkansas and Poteau rivers. In the immediate vicinity, the country presents a broken and an undulating aspect.

approaching in some parts to a mountainous character.

The annual quantity of rain at Fort Smith, on an average of three

years, is 35.64 inches.

The diseases reported within the ten years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Forts Smith and Coffee, for a period of ten years.

	`			FII	FIRST QUARTER.	QUAI	RTEF	ئہ							SEC	OND	QU.	SECOND QUARTER.	3R.			
Years	1829	1830	1831	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	1833 1	834 1	835 1	1836	1837	8838		1829	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	1831	1832	833	1834	1835	1836	1837	838	
Mean strength	•				'	51	51	53	44	54	253	•		•	•	,		54	51	47	55	207
Intermittent fever -		.	•			6	14	12	20	တ	48			•		•		=	4	G4	14	3
Remittent fever	٠	•	•	•	•	•	•	•	•	•	•	•	٠	•	•	•	٠	'	-	•	•	
Synochal fever	٠	•	•	•	•	•	•	~	•	•	-	'	٠	•	٠	•	•	•	-		•	
Typhus fever	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	,	•	•	1	٠
Diseases of the respiratory organs -	•	•	•	•	•	9	62	-	တ	-	33	•	'	•	•	•	•	က	•	63	•	
Diseases of the digestive		•	•	•	•	4	r3	2	C3	က	19	•	•	•	'	•	•	2	5	-	,	=======================================
Diseases of the brain and						-				-	G										-	
nervous system -			•	• •		<del>-</del> ,	. 67			٠.	, c.				• •	, ,	, ,			٠,	٠,	'
Rheumatic affections -	٠	•		•	•	-	2	က	•	2	14	٠	•	•	•	•	•	n	,	-	C4	
Venereal "	•	•	•	•	•	•	•	•	•	લ	cs.	•	•	•	•	•	•	-	•	-	٠	•
Ulcers and abscesses -	٠	·	•	•	•	<b>CS</b>	6.5	4	-	-	10	•	•	•	•	•	•	က	-	•	9	10
Wounds and injuries -	•	٠	٠	•	•	70	9	9	4	14	35	,	•	•	•	•	•	4	63	r.	•	
Ebriety	•	•	•	•	•	4	•	•	6	•	13	٠	٠	•	•	•	•	•	,	20	•	
All other diseases -	•	•	•	•	•	4	9	•	က	4	17	٠	•	•	•	•	•	9	က	es.	r.	91
Total		٠	•	١.	<u> </u>	36	62	32	27	39	196	•			•		•	36	18	20	29	103
	_	_	_	_	-	_	-		-		=	_	_		_	_		_		_	-	

-		205	51	,		16	30		, ,	- લ	13	34	4	15	177
	338		•		•			,			-	•	•	•	,
	37 18	54	17	# •	-	c3	9	•		٠,	•	2	ಣ	4	44
٠,	1832 1833 1834 1835 1836 1837 1838	44			_	C.5	4			. ,	7	9	_	_	28
RE	35 18	56 4			_		2		. 6	<b>→</b>	63	20	_	4	30
FOURTH QUARTER.	34 18			-		23					4	<u>~</u>			1
о на	18 18	51	16		_		15		_		_	18	<u>.</u>		75
URI	2 183	•	•	• •	•	•	'		<u>.</u>		•	•	•	<u>'</u>	'
FC	183	•	•	• •	•	•		•	•	' '	'	•	•	<u>'</u>	'
	1831	•	•	• •	•	•	•	•	•	• •	٠	٠	٠	'	
	1830 1831	•	•	٠ ،	•	•	•	•	•	• •	•	٠	•	٠	
-	1829	•	•		•	•	•	•	•		٠	•	•	•	
		270	120	250	•	27	7.1	<b>ं</b>	40	- m	19	58	38	31	430
	1838	53	65 0	20 .	•	4	14	•		₹	9	6	4	9	92
	1837	99	17	, و	•	4	7	•		3 63	4	4	2	4	55
R.	1836	49		- 4	• •	œ	4	•		٠,	2	2	က	દર	34
RTE	1835	56	28	= .	•	က	4	•		٠,	4	ಣ		7	99
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	•		•	•	•	'			•	•	•	•	,
IRD	1833	56	52	• [		00	42	C\$	4		•	37	25	œ	199
HI	1832	•	•			•	•	•		1 -4	•	•	•	,	•
	1831	•	٠			•	•		•	, ,	•	'	•	•	
	1830	•				•	•	•	•		'	•	٠	•	
	1829			•			٠	•	•		'	,	'	•	
		•				ra-	ave -	- und	٠		•	•	٠	1	•
			- 1	•		resp	digest	rain a n -	•	suoi	Sees	iries	•	e 80	•
		gth	feve	3 3	"	the us	the c	iseases of the bra nervous system	. 8	affecti "	absce	d init	•	sease	1
		streng	ittent	ent	lai s	seases of the	es of	s so so	es.	atic	and	ls an		er di	tal
	Years -	Mean strength	Intermittent fever -	Remittent	Typhochal	Diseases of the respira- tory organs	Diseases of the digestive organs	Diseases of the brain and nervous system -	Dropsies	Kheumatic affections	Ulcers and abscesses	Wounds and injuries	Ehriety	All other diseases -	Total

Under the class of diseases of the respiratory organs are comprised 70 catarrh, 6 pneumonia, and 4 pleuritis; under the head of digestive organs, 97 diarrhœa and dysentery, 22 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 1 epilepsy, and 4 mania a potu; and under that of venereal affections, 1 gonorrhœa and 8 syphilis.

As the total of deaths, according to the post returns, is 20, and the aggregate mean strength is 291, the annual ratio of mortality is  $6\frac{9}{10}$  per cent. Of the deaths, eleven only are reported in the medical returns, viz. 4 remittent fever, 2 pneumonia, 1 diarrhæa, 2 ebriety, and 2 from

causes not specified, being  $4\frac{7}{10}$  per cent.

The difference in the ratio of mortality between the medical and post returns is owing chiefly to accidental deaths. Thus, in the first quarter of 1834, it is remarked by Assistant Surgeon Welsh that, "during the same period, one soldier was drowned, another died suddenly in quarters from the excessive use of ardent spirits, and a third died in an hour after having received a severe beating from a whiskey retailer; none of which cases was entered on the register."

The annual average of intermittent fever is 107 per cent., and that of remittent fever is 14 per cent. The ratio of the former is nearly as high as that of Fort Gibson, whilst that of the latter is scarcely more than half as high. The total of deaths from remittent fever is four. The

annual average of diarrhoa and dysentery is 41 per cent.

The relative agency of the seasons in the production of disease in general is exhibited in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated annually.
5 first quarters, 4 second " - 5 third " - 4 fourth " - Annual ratio -	253 207 270 205 234	196 103 430 177	775 498 1,593 863 3,872

Hence every man, on an average, has been reported sick once in every three months.

### FORT TOWSON.

# LATITUDE 33° 51' N., LONGITUDE 95° 01' W.

This fort, which is situated upon the spot formerly occupied by Cantonment Towson, is about six miles northwest of Red river, and the same distance south and east from the Kiamichi. Immediately in the rear of the buildings is an abrupt ravine about 80 feet deep, varying in breadth from a few yards to half a mile, and bounded on the opposite

side by rolling hills, densely covered with oak and pine. Through it, at the foot of the hill, runs a creek, which has its source among the pine hills to the northwest of the fort, and which empties into Red river, a short distance below the Kiamichi. This bottom, which is covered with hickory, scrub-oak, etc., presents a marshy surface—the obvious source of malarial exhalations. In front of the fort, the ground descends gradually for a mile. At this point, the prairies commence and spread out in an undulating manner, occasionally interrupted by woods, to a great distance. In the immediate vicinity of the fort the soil, which is composed of light sand and clay, is not very productive. Upon the prairies the soil, although superficial, is much richer, based upon a thick stratum of limestone.

On an average of three years, the mean annual quantity of rain is 46.73 inches.

The diseases reported within the 10 years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Towson, for a period of ten years.

		1437	254 53 10 3	58	8-4 α-4 α	86 89	756
	1838	225	30	25	1 100	1 - 1 - 1	119
	1837	117	68	, is	, 14 a		64
ER.	1836	180	45	<b>20</b> 4		9 - 10	90
ART	1835	169	56	و ي	0 . 9	12 - 6	66
o ou	1834	151	,49 20 -	1 17		. 4 . 4	107
SECOND QUARTER.	1833	201	4000	3		6 12 16	77
SEC	1832 1833 1834 1835 1836 1837 1838	219	7 13 -	7	0 .	25	96
	1831	175	10 10 00 to	9	6	112 116 -	104
	829 1830 1831	•	1 1 1 1	1 1		1 1 1 1	•
	1829	•		.th.	I anut bate	Post evacu	'
		1157	278 19 4	76	3 45 45	27 79 22 52	652
	1838	83	27	3 - 4	98		55
	1837	122	37	9		19.8	58
٠. ي	1836	186	111	13		10	85
FIRST QUARTER.	1829   1830   1831   1832   1833   1834   1835   1836   1837   1838	145	125	6 .	1 00 1	12	172
QUA	1834	169	30 -	1 2	1 1 4 1	5 - 5	7.1
RST	1833	208	13	14 36	12	62.6	122
FI	1832	176	8,6,,	14		1 6 14	89
	1831			Jirq A	ni bəhaild	Post re-esta	
	1830			1 1	1 1) 1	No troops.	
	1829	89	m , , ,	લ લ		. 03 00 03	21
	r	1	' ' ' ;	ato-	and .		'
			er	respir - diges	brain em - ctions	csses juries	•
		ength	nt fever fever fever	ns - of the	of the	d absc	•
	- 81	Mean Strength	Intermittent fever Remittent fever Synoehal fever Typhus fever	ry organs - Diseases of the digestive organs	Diseases of the brain and nervous system - Dropsies Rheumatic affections - Rheumatic affections - Rheumatic affections	Ulcers and abscesses Wounds and injuries Ebriety All other diseases	Total
	Years	Mea	Ren Syn Typ	E I	Disc Drog Rhe	Ulcers a: Wounds Ebriety All other	

		1388	374	4 3	74	143	9	1 47	7	8 8 8		7.7	868
	1838	217	22.	1 1	15	17	•	. თ	•	13	•	13	92
	1837	108	65 60	1 1	es.	35	•	. ~	_	- <del>4</del>	•	က	89
ER.	829 1830 1831 1832 1833 1834 1835 1836 1837 1838	140	88		17	દર	-	- e	1	es 10	•	16	117
FOURTH QUARTER.	1835	194	51	- 4	13	88	'	. 4	-	. 2	•	9	121
T QU	1834	148	72	1 1	œ	П		1 00	က		•	14	114
URTI	1833	186	70	- 4	cs.	20	-	1 1	. (	ro	•	2	114
FO	1832	212	30		6	37	1	1 00	CS (	24	1	~	126
	1831	183	24	4 4	00	13	4	14	•	9	1	13	125
	1830	,	• 1	1 1	1	•			'		٠	1	
	1829		- 1	1 1		'	1		•		•	•	
		1415	638	37	49	229	က	29	က	75	က	121	1421
	1838	218	103 14		6	31	-	, m	-	-16	٠	16	194
	1837	112	63	1 1		6		. 2	-	. —		œ	96
SR.	1836	165	109 34	1 1	es .	63	•	. –	1	<u>4</u>	က	15	245
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	205	110	1 1	25	4	-	, m	•	ကြေ	1	13	180
QU.	1834	113	108	. თ	Ç\$	c			-	. 1	•	દર	130
HRD	1833	195	35 30	31	-	28		. 63	•	9 8	١	56	177
TI	1832	217	84 32	∞ -	9	46	•	. თ	•	14	•	9%	225
	1831	190	26 25	₹ .	4	43	-	٠ =	1	19	٠	15	174
	1830		1 1	1 1	1	١.	•				•	•	'
,	1829			٠,	•	•	•	٠.	•			1	
	•	•	' '	' '	atory	stive	- and	' '	•	1 1	•	•	•
	•	'	ver -	3 3	respir	e dige	em -	ctions	"	cesses	•	ses -	•
	•	ength	ent fer		of the	of the	of the s syst	c affe	•	d abse	•	diseas	- Fe
	LIS -	Mean Strength	Intermittent fever - Remittent " .	Synochal Typhus	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and nervous system -	Dropsies Rheumatic affections	Venereal	Ulcers and abscesses Wounds and injuries	Ebriety	All other diseases	Total
	Years	Me	Inte	Syn	Dis	Dis	Dis.	Dro Rhe	Ven	ž Š	Ebr	ΨV	

Under the class of diseases of the respiratory organs are comprised 150 catarrh, influenza, and acute bronchitis; 47 pneumonia, 36 pleuritis, and 13 phthisis pulmonalis. Under the head of digestive organs, 287 diarrhæa and dysentery, 172 cholic and cholera, and 6 hepatitis. Under the class of brain and nervous system, 5 epilepsy, and 1 mania a potu; and under that of venereal affections, 13 gonorrhæa and 9

syphilis.

As the total of deaths, according to the post returns, is 47, and the aggregate mean strength is 1,560, the annual ratio of mortality is 3 per Of the deaths, 28 are reported in the medical returns, viz: 2 typhus, 2 remittent and 2 congestive intermittent fever, 4 phthisis pulmonalis, 1 pneumonia, 1 abscess of the lungs, 3 gastro-enteritis, 1 peritonitis, 2 dysentery, 1 intussusceptio, 1 gangrene, 1 drowned, 1 frozen when intoxicated, and 6 from causes not specified. Excluding the two cases of asphyxia from submersion and low temperature, the annual ratio of mortality is nearly two per cent. Besides these deaths, there were six among the Arkansas volunteers, viz. four typhoid pleurisy, one bilious congestive fever, and one erysipelas adematodes. When so ill as to be considered forlorn, these cases were sent in from camp to the hospital. As the volunteers and other detachments encamped at this post in 1836 are included in the post returns, an explanation of the disparity between the total of deaths given by these returns, and by the medical reports, is afforded.

This station, keeping in view the region in which it is located, has generally maintained a remarkable degree of salubrity. It is only when wide-spread epidemics prevail, as in the summer of 1839, that this post exhibits a high ratio of sickness. Intermittent fever, however, is very rife. The annual average of this type of fever is 114 per cent., and that of remittent is 20 per cent. In 1835, in a mean strength of 178, there are reported 342 cases of intermitting fever. In the first quarter of this year the sick report embraces 172 cases, of which 125 are intermitting fever. It is remarked that it yields readily to the ordinary course of treatment, but that it is liable to recur from the slightest causes. During the ten years, but six deaths are reported from fever. As regards the high ratio of intermittents, it would seem that a sufficient explanation is

afforded in the topographical description of this station.

The relative agency of the seasons in the production of disease in

general is shown in the following abstract-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
8 first quarters - 8 second " - 8 third " - 8 fourth " - Annual ratio -	1,157	652	563
	1,437	756	518
	1,415	1,421	1,004
	1,388	898	647
	1,349	3,727	2,763

Hence each man has been on the sick report, on an average, once in every four and a third months.

#### FORT JESUP.

#### LATITUDE 31° 30' N., LONGITUDE 93° 47' W.

This post is situated on the ridge dividing the waters of the Red and Sabine rivers, being distant from each about twenty-five miles. On the northern side of the ridge the streams empty into Red river, mostly through Spanish lake, the nearest point of which is about twelve miles from the fort. On the opposite side, the waters are conveyed directly into the Sabine. The post is about 100 miles due north from the Gulf of Mexico. It was established in 1822.

The aspect of the country on either side of the ridge is rolling and broken. Along the margins of streams some good lands are found, being a black clayey soil of a tenacious nature. The high lands are covered chiefly with pine, thinly intermixed with oak and hickory; whilst the streams are skirted with beach, mulberry, sassafras, and occasionally

The summer usually commences about the 1st of May, and continues until the last of September; during which period a high temperature, from ten o'clock until sun-set, generally prevails, the range of the thermometer being from 76° to 90° and 96° of fahrenheit. The nights, however, are often cool and pleasant, owing to the refreshing breezes which come in the direction of the Gulf of Mexico. What is called the rainy season begins generally in the month of February, and continues until the first or middle of May. The annual quantity of rain, on an average of four years, is 47.43 inches.

The diseases reported within the ten years are comprised in the

following abstract-

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Jesup, for a period of ten years.

		2299	105	24	3 0	מ	308	870	34	4	126	35	112	263	33	168	2118
	1838	218	e5 65	•		•	21	65	4	•	6	-	Ξ	30	17	9	186
	1837	205	9				35	92	4	•	~	•	13	38	11	21	211
ER.	1836	97	30	•		•	56	41	4	•	17	દર	CS.	Ξ	4	က	130
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	1831	201	- oo -	4	•		13	91	'	-	cs.	9	•	6	•	14	147
	1830	126	10	ه م	•	•	67	34	1	•	દર	က	_	Ξ	7	C.S	88
	1829	145	4	1	•	•	30	17	'	'		4	•	9	1	હ	99
		2281	09	133	3	•	475	335	36	9	122	21	32	193	58	159	1502
	1838	227	10	•	•		85	49	6	1	Ξ	ಣ	16	43	91	12	197
	1834 1835 1836 1837 1838	188	7	1	•	1	25	19	=		ಣ	'	en	23	17	123	119
걾	1836	369	6	•	•	•	38	œ	က	c3	18	-	4	Ξ	13	22	128
RTE	1835	261	4	_	•	•	09	22	_	_	4	cs.	٠	40	C5	6	146
QUA	1834	268	es	ഹ	•		9~	88	•	_	10	-	'	19	'	٢	153
FIRST QUARTER.	1832 1833 1	258	5	c.s			30	19	•		lõ	•	C.S	30	'	9	109
FI	1832	277	61	o	.5	•	140	31	'	_	54	ಣ	r.	13	1	85	352
	1829 1830 1831	160	63	•	•	•	55	10	•	1	٠,	5	•	က	1	4	79
	1830	223	4	'	•	•	0%	22		1	<u>ت</u>	9	C.5	က	10	_	108
	1829	150	4	•	•		53	38	es	•	C.S	•	1	10	'	C.S	=
	•	'	•	•	•	- 100	awry -	1 -	n and -	•	770	•	1	1	•	'	'
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	'	rengt	ent fe			of the	of th		or the	•	ic affe		nd abs	and i	•	disea.	Total -
	Years -	Mean Strength	Intermittent fever	Remittent	Synochal	Typing	Organs	organs	Diseases of the brain and nervous system -	Dropsies	Rheumatic affections	Venereal	Ulcers and abscesses	Wounds and injuries	Ehriety	All other diseases	To
	Ye	Me	Int	Re S	2 5	, E		4	Ĭ -	Ğ	Rh	Ve	ď	×	គ្ន	AU	

		2330	104	× ×	4 0	.3	237	335	49	25	98	91	2.0	226	51	133	1330
	8881	201	12	•	, ,	<b>-</b>	œ	13	9	•	က	• ;	01	F .	Ξ	cs.	7.9
	1837	230	14	•	,		14	38	•		~	25	= :	37	n n	88	136
ER.	1836	278	15	4		•	56	48	17	•	œ	- ;	=	30	25	=	183
ART	1835	295	7		•	•	39	80	21	'	0	2	10	22	œ	Ξ	215
1 QU	1834	271	2	c.s	1	•	24	55	.4	_	9	•	က	53	2	,	134
FOURTH QUARTER.	1833	241	4	c.s		_	34	25	•	•	7	•		56	1	c,	102
FO	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	278	œ		•		21	ŝ	-	•	5	•	9	37	,	22	132
	1831	216	88	4	'		19	21	•	1	44	cs.	_	37	•	54	210
	1830	137	ಣ	•	•	•	6	13	•	•	,	_	٠	10	D.	•	41
	1829	183	œ	10	4	1	43	10	•	ı	•	5	4	7	_		98
		2291	283	98	6	6	174	624	64	က	93	34	121	301	72	122	1995
	1838	214	30	•	•	•	7	65	14	•	12	•	16	33	29	14	550
	1837	247	14	cs.	•	•	œ	99	7	сs	4	•	13	24	9	35	17.1
نہ ا	1836	93	7	_	•		19	21	cs.		ಣ		7	12	9	9	84
RTEI	1835	318	132	•	•	1	23	101	16	1	6	_	31	18	6	14	353
THIRD QUARTER	1834	306	10	12	'	00	16	78	15	'	1	•	œ	99	,	7	221
RD	1833	246	7	cs	က	•	20	7/3	က	•	18	•	0	20	,	က	158
THI	1832	310	35	_	•	_	20	152	2	•	30	_	31	88	•	42	436
	1831	178	5	30	4	•	17	24	•	'	4	œ	က	11	•	1	96
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	191	15	30	c3	•	•	16		'	_	9	က	14	e5	-	1111
	1829	218	28	81	•	•	16	38	-	•	-	90	•	25	•	•	145
	'	•		•	•	•	irato-	stive	and -	•	1	•	•	-	•	•	•
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		ength	int fe	fever	fever	ever	of the ns -	of the	of the	, '	c affe	affecti	d abse	and in	•	diseas	- al
1	ars -	Mean Strength	Intermittent fever	Remittent fever	Synochal fever	Typhus fever	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and	Dronsies	Rheumatic affections	enereal affections	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases	Total
1	Years	Me	Inte	Ren	SVI	Tyl	Dis	Dis	Dis	Dro	Rhe	Ven	Cle	Wo	Ebr	AII	

Under the class of diseases of the respiratory organs are comprised 994 catarrh, 32 pneumonia, 143 pleuritis, and 19 phthisis pulmonalis; under the head of digestive organs, 1,392 diarrhæa and dysentery, 246 cholic and cholera, and 8 hepatitis; under the class of brain and nervous system, 8 epilepsy, 74 mania a potu, 2 apoplexy, and 5 nyctalopia; and under that of venereal affections, 74 gonorrhæa and 29 syphilis.

As the total of deaths, according to the post returns, is 70, and the aggregate mean strength is 2,306, the annual ratio of mortality is 3 per cent. Of the deaths, all are reported in the medical returns, viz. one remittent fever, two typhus fever, twelve phthisis pulmonalis, eight pneumonia, three hydro-thorax, one ascites, nine gastro-enteritis, two dysentery, six chronic diarrhæa, one hepatitis, three epidemic cholera, seven mania a potu, six ebriety, two apoplexy from ebriety, one casualty,

two sudden, and four from causes not specified.

It is a remarkable fact that among 70 deaths three only are reported from fevers. The annual average of fevers of malarial origin is low for this region, intermittents being 24, and remittents 7 per cent. The third quarter of 1835 is the only season in which a high ratio of intermitting fever is presented, being at the rate of 41 per cent. for the quarter. "Intermittents," says Surgeon P. H. Craig, "have prevailed to a greater extent than I have ever known before, and many of the cases were characterized by great obstinacy. Few of the families escaped the disease; but I report the cases only that occurred among the officers and soldiers. The sudden atmospheric vicissitudes in the months of June, July, and August, may be assigned as the probable cause of its unusual prevalence." It is a singular fact that, notwithstanding the peculiar rifeness of intermitting fever, not a single case of the remitting form is reported.

In regard to the treatment of diseases, it is remarked by Surgeon Craig, that morbid action is generally of a character requiring antiphlogistic means in the early stages, such as bleeding, both general and local,

and the exhibition of mild purgatives.

The following abstract exhibits the relative agency of the seasons in the causation of disease in general—

TABLE exhibiting the ratio of siekness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated annually.			
10 first quarters - 10 second " - 10 third " - 10 fourth " -	2,281 2,299 2,291 2,330	1,502 2,118 1,995 1,330	659 921 871 571			
Annual ratio -	2,300	6,945	3,020			

Every man, on average, has consequently been reported sick once in every four months.

The following table presents the mortality of each post and its relative degree of sickness, based on the statistics furnished during the period of ten years-

TABLE exhibiting the mortality of each post, and the relative degree of sickness.

	Mean aggregate strength.	Deaths per Adjutant General's returns.	Deaths per medical returns.	Total of cases reported.	Ratio per 1,000 of mean strength, under treat- ment annually.
Jefferson Barracks -	3,193	135	111	10,965	3,434
Fort Gibson	4,064	259	180	16,487	4,057
Forts Smith and Coffee -	234	20	11	906	3,872
Fort Towson	1,349	47	26	3,727	2,763
" Jesup	2,300	67	66	6,945	3,020
Aggregate	11,140	528	394	39,030	
Ratio per 1,000 -	-	45*	36	-	3,504

The annual ratio of mortality, according to the medical reports, is  $3_{10}^{6}$ per cent., and according to the Adjutant General's returns,  $4\frac{5}{10}$  per cent. As in the preceding classes, the deaths from epidemic cholera (24 at Jefferson Barracks, 18 at Fort Gibson, and 3 at Fort Jesup) have been excluded in both these calculations; and in the medical returns, those deaths also reported as drowned, frozen, and suicide. As the ratio per 1,000 of mean strength annually under treatment is 3,504, it follows that every man, on an average, was reported sick once in nearly every Judging from the ratio under treatment annually as  $3\frac{1}{5}$  months. affording an index of the comparative salubrity of the several posts composing this class, it is found that Fort Gibson exhibits the highest, and Fort Towson the lowest, extreme. The ratio under treatment annually in this class is the highest yet presented.

The general results obtained from this class of posts will now be exhibited, in further illustration of the diseases of this region, showing the relation of season and climate with morbid action.

<sup>\*</sup> The aggregate mean strength, according to the Adjutant General's returns, is 11,739,

1	DISE	ASES	5.		0.000	Jefferson Bar- racks.	Fort Gibson.	Forts Smith & Coffee.	Fort Towson.	Fort Jesup.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
INTER	t.												
First quarter Second " Third " Fourth "	:	:	:	:	-		599 804 1990 1493	48 31 120 51	278 254 638 374	105 283	1079 1377 3613 2255	10611 10670 11847 11428	129 305
Annual rat	tio	-	-	-	-	1092	4886	250	1544	552	8324	11140	732
REM	ITTE	NT FE	VER.										
First quarter Second " Third " Fourth "	:	-	:	:	:	47 49 292 137	47 70 671 228	1 26 5	19 53 162 40	13 27 86 28	126 200 1237 438	10611 10674 11847 11428	12 19 104 38
Annual rat	io	-		-	-	525	1016	32	274	154	2001	11140	173
cv	YOU'L	AL FEV	77770										
	NOCHA	al te	ER.										
First quarter Second " Third " Fourth "	:	:	:	-	:	7 1 -	11 2 89 46	1 1 25 -	10 37 4	2 21 9 4	18 41 161 54	10611 10674 11847 11428	2 4 14 5
Annual ra	tio	-		-	-	8	148	27	55	36	274	11140	25
'r	VPHII	S FEV	ER.							_			
	11.110												
First quarter Second "	•	•	•	-	•		2	-	3	9	$\frac{2}{12}$	10611 10674	0 2-10
Third "			-		-	1		_	4	9		11847	1 4-10
Fourth "	-	-	-	-	-	-	1		12	2		11428	1 3-10
Annual ra	tio	-				1	5	_	19	20	45	11140	3 9-10
									-	-	-		
DIARRH													
First quarter						200	210	11	18	219	658	10611	62
Second "			-		-	697					1968		
Third "			-	-	-	1232					2645		
Fourth "	-	-	-	-	-	515					1385		
Annual ra	atio	-	•	-	-	2644	2236	97	287	1392	6656	11140	591

CATARRH AND INFLUENZA.   First quarter														
First quarter	I	DISE.	ASES	8.			Jefferson Barracks.	Fort Gibson.	Forts Smith & Coffee.	Fort Towson.	Fort Jesup.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
Second "   116   251   2   30   250   649   10674   61	CATARR													
Annual ratio 913 1106 69 150 994 3232 11140 294  PNEUMONIA.  First quarter 41 182 - 22 15 260 10611 25 Second " 88 33 2 7 7 57 10674 5 Third " 12 16 2 1 4 35 11847 3 Fourth " 25 28 2 17 6 78 11428 7  Annual ratio 86 259 6 47 32 430 11140 40  PLEURITIS.  First quarter 86 102 2 7 28 225 10611 21 Second " 33 39 1 12 45 130 10674 12 Third " 38 19 - 7 20 84 11847 7 Fourth " 54 38 1 10 50 153 11428 13  Annual ratio 211 198 4 36 143 592 11140 53  PHTHISIS PULMONALIS.  First quarter 7 12 1 3 5 28 10611 3 Second " 10 7 - 6 6 29 10674 3 Third " 20 16 - 2 6 44 11847 4 Fourth " 12 7 - 2 2 23 11428 2  Annual ratio 49 42 1 13 19 124 11140 12  RHEUMATISM.  First quarter 62 139 14 45 122 382 10611 36 Second " 49 42 1 13 19 124 11140 12  RHEUMATISM.  First quarter 61 96 7 44 126 334 10674 31 Third " 25 78 6 29 93 231 11847 20 Fourth " 81 85 7 47 86 306 11428 27	Second " Third "	-	-	:		-	116 117	251 73	2 25	30 38	250 139	649 392	$10674 \\ 11847$	61 33
First quarter		io	-											
Second "	1	PNEUI	MONIA	۸.										
First quarter	Second " Third "	:	 -	:		-	8 12	33 16	2 2	7 1	7	57 35	10674 $11847$	5 3
First quarter	Annual rat	io	-	-	-		86	259	6	47	32	430	11140	40
Second "		PLEU	RITIS	s.										
First quarter 7 12 1 3 5 28 10611 3 Second " 10 7 - 6 6 29 10674 3 Third " 20 16 - 2 6 44 11847 4 Fourth " 12 7 - 2 2 2 3 11428 2 Annual ratio 49 42 1 13 19 124 11140 12 RHEUMATISM.  First quarter 62 139 14 45 122 382 10611 36 Second " 61 96 7 44 126 334 10674 31 Third " 25 78 6 29 93 231 11847 20 Fourth " 81 85 7 47 86 306 11428 27	Second " Third "	-	:	:		-	33 38	39 19	1 _	12 7	45 20	130 84	$10674 \\ 11847$	12 7
First quarter 7 12 1 3 5 28 10611 3 Second 10 7 - 6 6 29 10674 3 Third 20 16 - 2 6 44 11847 4 Fourth 12 7 - 2 2 2 23 11428 2 Annual ratio 49 42 1 13 19 124 11140 12 RHEUMATISM.  First quarter 62 139 14 45 122 382 10611 36 Second 61 96 7 44 126 334 10674 31 Third 25 78 6 29 93 231 11847 20 Fourth 81 85 7 47 86 306 11428 27	Annual rat	io	-	-	-	-	211	198	.4	36	143	592	11140	53
Second "	рити	sis p	ULMO	NALIS										
RHEUMATISM.  First quarter 62 139 14 45 122 382 10611 36 Second " 61 96 7 44 126 334 10674 31 Third " 25 78 6 29 93 231 11847 20 Fourth " 81 85 7 47 86 306 11428 27	Second " Third "	-	:	:		:	10 20	7 16	-	6 2	6 6	29 44	$10674 \\ 11847$	3 4
First quarter 62 139 14 45 122 382 10611 36 Second " 61 96 7 44 126 334 10674 31 Third " 25 78 6 29 93 231 11847 20 Fourth " 81 85 7 47 86 306 11428 27	Annual rat	io	-	-	-	-	49	42	1	13	19	124	11140	12
Second " 61 96 7 44 126 334 10674 31         Third " 25 78 6 29 93 231 11847 20         Fourth " 81 85 7 47 86 306 11428 27	RHEUMATISM.													
Annual ratio 229 398 34 165 427 1253 11140 114	Second " Third "				-	-	61 25	96 78	7 6	44 29	126 93	334 231	$10674 \\ 11847$	31 20
	Annual rat	io	-	-	-	-	229	398	34	165	427	1253	11140	114

As this class of posts maintains the same climatic relation towards the preceding one, as the third class of the northern division does towards the first two, so a similar relation is found in regard to pulmonary diseases. Embracing a region remote from the influence of large bodies of water, the ratios of catarrhal affections, pleuritis, and pneumonia, in this, compared with those of the preceding class, are higher, notwithstanding the more southern locality of the interior stations. The two classes of the middle division stand thus—

	(	Catarr	h and inf	luenza.	1	Pneumonia	ı.	Pleuritis.		
Sea-coast	_	-	271	-	-	25		32		
Interior	-	-	290	~	_	39	-	52		

In the system of climate now under investigation, the comparative agency of the seasons in the causation of pulmonary diseases is more strikingly contrasted than in any other. In catarrh and influenza, the ratios of the first and third quarters stand as 122 to 33, in pneumonia as 25 to 3, and in pleuritis as 21 to 7.

In regard to the comparative influence of the seasons in the production of rheumatic affections, this class is found to exhibit it also more decidedly than any other; but the general consideration of this subject will be reserved until the investigation of each class of posts shall have

been completed.

In the last class, a comparison was made with the mean results given in the three classes of the northern division of the United States, showing that the ratios of intermittent and remittent fever, as well as diarrhæa and dysentery, increase in proportion as more southern latitudes are reached. The class of stations just described occupies nearly the same latitudes as those constituting the preceding class; but the average of diseases of malarial origin is higher, owing doubtless, in some measure, to the circumstance that as the region is inland the heats of summer are greater. Compared with this class, it is found that the annual ratio of intermittent fever is twice as high, and that of diarrhæa and dysentery is about one-third greater; whilst the ratios of remittent, synochal, and typhus fever, present little difference.

The total of deaths in each month, according to the post returns, is

exhibited in the annexed table-

TABLE showing the number of deaths in each month.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Total of deaths in each month.	41	34	35	19	28	46	56	66	88	72	57	31	573

In this table are included 45 deaths from epidemic cholera. Of these, three occurred in January, eight in May, three in June, nine in July, ten in August, and twelve in September.

### SOUTHERN DIVISION OF THE UNITED STATES.

This region is characterized by the predominance of high tempera-As we proceed south from Canada, to Florida, it is found that the contrast in the seasons grow less in proportion as the mean annual temperature increases. The peculiar character of the climate of our most southern latitudes is distinguished less by the mean annual temperature, than in the manner of its distribution throughout the year. At Fort Snelling, the mean winter temperature is 17° 29', and that of summer is 72° 80; and in Florida, on the other hand, the former, at Fort Brooke and Key West, is respectively 65° 02' and 70° 05', and the latter, 81° 04′ and 81° 39′. Thus, whilst the difference between the mean temperature of summer and winter, at Fort Snelling, is 55° 51', at Fort Brooke it is 16° 02′, and at Key West only 11° 34′; and whilst the winter at Fort Snelling is 52° 76′ colder than at Key West, the summer of the latter is only 8° 59' warmer. We thus perceive the truth of the remark made by Humboldt, that the climate of the tropics is characterized much more by the duration of heat than its intensity. The remarkable uniformity of the seasons observed in the peninsula of East Florida is, however, much less striking as we proceed into Georgia. At Augusta Arsenal, for example, notwithstanding the mean annual temperature is nearly 8° lower than at Fort Brooke, the mean summer temperature is higher. In summer, the mercury rises higher in most parts of the United States, and even in Canada, than it does along the coast of Florida. In six years' observation at Key West, it was never known to rise above 90°. In peninsular Florida, vegetation is continuous; wild flowers never cease to unfold their petals; and the temperature of the waters of rivers and bays will generally admit of bathing throughout the winter.

The first class comprises the following posts:—Augusta Arsenal, Fort Mitchell, Baton Rouge, New Orleans, and Forts Pike, Wood, and Jackson; and the second class embraces all the stations of East Florida. In the former, Augusta Arsenal and Fort Mitchell are included, in

default of a better arrangement.

#### FIRST CLASS.

# AUGUSTA ARSENAL.

### LATITUDE 33° 28' N., LONGITUDE 81° 53' W.

The class of posts to be now described are eight in number, viz: Augusta Arsenal, Ga., Fort Mitchell, Ala., and six posts on the lower Mississippi, La., to wit: Forts Pike, Wood, St. Philip, and Jackson, and the posts at New Orleans and Baton Rouge.

Augusta Arsenal, situated about three miles from the city of Augusta, occupies a high and dry position among the "sand-hills." It is distant about 130 miles from the ocean, and is elevated, it is estimated, 600 feet above its level. The nearest point of the Savannah river is 2 miles, whilst the surrounding country presents no marshes or lakes. The

locality of this station has an elevation of about 200 feet above that of Augusta; and as the soil is hard, dry, and sandy, and the physical aspect of the neighboring country exhibits a succession of hills and sloping valleys, the most favorable natural circumstances obtain to facilitate drainage. The soil is rather unproductive. Culinary vegetables are very inferior in size and quality. Some varieties of fruit, however, such as the apple, plum, peach, and watermelon, are very abundant, attain a large growth, and are finely flavored. The forest trees consist chiefly of different species of the genus quercus, pinus, carya, juglans, and diospyros.

The diseases reported within the ten years are comprised in the

following abstract-

ABSTRACT exhibiting a condensed view of the principal diseases at Augusta Arsenal, for a period of ten years.

		493	18	35	4	1	20	63	7	•	13	7	2	16	က	23	213
	1838	,	•	•	•	1	. 1	•		•	•	•	•	1	1	•	1
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	'	1	•	•	•	•	•	•	•	•	•	1	,	,	1	i
ER.	1836		•	•	rell	[ite]	A ric	T 10	of be	jer	૧૦૯	AЭ	'9	z 1	irio	ΙV	•
SECOND QUARTER.	1835	09	1	١	•	1	9	9	•	•	4	•	_	જ	•	લ્ય	21
) QT	1834	99	ध	က	લ્ર	•	જ	က	•	1	•	•	•	CS.	_	4	19
CON	1833	59	7	~	•	1	9	c۱	7	1	1	က	•	_	1	က	30
SE(	1832	55		2	es	•	က	r.c	•	'	_	_	_	က	٠	7	24
	1831	83	ಣ	ς₹	•	•	63	<b>∞</b>	63	,	cs.	cs.	_	4	•	-	27
	1830	93	4	9	•	•	,	19	લ્ર	٠	•	٠	-	63	63	9	42
	1829	87	લર	10	'	•	1	19	83	•	9	_	_	es.	1	9	20
		609	13	Ξ	9	•	69	06	4	•	20	35	6	33	1	25	343
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	'	1	•	•	ı	•	•	1	•	•	•	,	1	'	
	1837		'	1	1	•		,	•	•	•	•	•	1	ı	1	'
H.	1836	49		•	٠	ı	-	લ્ર	-	•	١	•	•	c۱	•	10	16
RTE	1835	63	'	_	١	•	10	લ્ર		'	_	-	1	4	١	1	30
FIRST QUARTER.	1834	30	'	•	•	•	-	63	•	•	_	_	4	_	7	က	10
RST	1833	732	63	63	•	•	42	7.1		1	~	16	63	12	_	19	175
E	1832	62	es	-	_	•	9	7	•	'	~	જ	લ્ય	9	9	cs.	42
	1831	51	-	4	•	1	ಣ	က	•	٠	'	०२	က	_	'	2	22
	1830	63	7	'	•	'	က	1		1	¢5	_	63	2	•		27
	1829	59	-	က	2	_	ಣ	જ	'	'	63	65	1	જ	က	00	31
	Years	Mean Strength -	Intermittent fever	Remittent fever	Synochal fever	Typhus fever	ry organs -	Diseases of the digestive organs	Diseases of the brain and	Dropsies -	Rheumatic affections -	Venereal affections -	Ulcers and abscesses	Wounds and injuries -	Ebriety	All other diseases -	Total

ABSTRACT—Continued.

		359	9	9	00	,	17	12			13	10	C)	17	ಣ	6	102
	1838	•	•	1	•	•	1	1	•	•		•	•	•		'	-
	1837		'	•	•	1		•	•	'	•	•	•	•	•		
BR.	1836		-	•	•	•		•	•	•	•	•	•	'	•	•	'
ARTJ	1835	51	- 1	•	•	1		•	•	•	-	4	•	c,s	C.S	က	12
QU.	1834	62	•	٠	က	•	7	4		•	63	•	•	65	•	4	22
FOURTH QUARTER.	1833	17	•		•	1	-	-		•	•	•	•	લ્સ	•	•	10
FOU	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	69	•	4	•	•	2	•	•	•	-	es	•	က	•	•	15
	1831	63	•	•	,	•	લ	2	•	•	<b>€</b> ₹	•	_	ÇŚ	•	•	12
	1830	828		_	•	•	લ	,		'	_	_	•	€\$	•		o o
	1829	69	5	•	rO	•	ı	લ	ı	,	ro	က	1	4	-	€₹	28
		488	36	27		65	14	75	12	65	15	6	6	13	က	20	237
	8838		1	•		•		,	•	•	•	•	'	•	'	1	•
	1837		1	,	'	,	•	•	•	•	•	•	•	•	•		
2	1836	•	•	•	•	•	•		•	•	•	•	•	'	•		
THIRD QUARTER.	1835	53		က	•	-	-	4	_	'	•	•	_	_	•	cs.	41
QUA	1834	65	7	G₹	•	a	•	2	•	,	က	લ્સ	က	_	•	က	36
IRD	1833	54		4	•	,	-	7			-	-	_	_	•	-	18
TH	1832	50	. 9	9	•	,	63	12	1	-	_	•	•	•	•	63	30
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	93	00	9	•	٠	•	10	ū	•	es.	•	-	4	•	9	42
	1830	78	4	જ	•	•	10	19	¢,		_	က	C.S	ro	က	4	55
	1829	95	10	4	•	-	•	18	4	_	7	က	-	-	•	CS.	52
	• '	•	•	•	•	1	ato-		and -	1	•	•	1		•	٠	•
	•	q q	yer	<b>y</b>	33	"	e respir e diges	,	e brain tem	٠	ections	"	scesses	injuries	•	ases	
	•	rengt	tent fe	ı;	_		of the ans of th	" ,	of the 1s sys	•	tic aff	_	nd abs	and i	٠	dise.	•
	Years -	Mean Strength	Intermittent fever	Remittent	Synochal	Typhus	Diseases of the respiratory organs  Diseases of the digestive	organs -	Diseases of the brain and nervous system	Dropsies	Rheumatic affections	Venereal	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases	Total

Under the class of diseases of the respiratory organs are comprised 85 catarrh, 23 pneumonia, 2 pleuritis, and 4 phthisis pulmonalis; under the head of digestive organs, 115 diarrhæa and dysentery, and 31 cholic and cholera; under the class of brain and nervous system, 2 epilepsy, 5 delirium tremens, and 1 nyctalopia; and under that of venereal affec-

tions, 35 gonorrhæa, and 16 syphilis.

As the total of deaths, according to the Adjutant General's returns, is 18, and the aggregate mean strength is 488, the annual ratio of mortality is  $3\frac{7}{10}$  per cent. Of the deaths, 17 are reported in the medical returns, viz. 3 remittent fever, 4 phthisis pulmonalis, 1 scarlatina anginosa, 1 gastro-enteritis, 1 cholera morbus, 1 chronic diarrhea, 1 chronic gastritis, attended with ulceration of the mucous tissue, 1 chronic visceral lesions, 2 mania a potu, 1 ebriety, and 1 wound. The ratio of mortality, according to the medical returns, is  $3\frac{1}{10}$  per cent.

The average of fevers of malarial origin is low, the ratio of intermittents being 15, and that of remittents 16 per cent. Out of 79 cases of remitting fever, 4 terminated fatally. It may be necessary to remark, however, that in several reports these two forms of fever were so registered as to render it impracticable to determine the precise number of

each.

The fevers of this locality, which are generally of a mild and manageable nature, are mostly owing to exposure to solar heat, the abuse of alcoholic liquors, and perhaps the excessive use of unripe and indigestible fruit.

During the present summer, (1839,) most of the cities of the Southern States have suffered severely from yellow fever. Although the city of Augusta experienced its worst ravages, the garrison of this post, with the exception of one case, was exempt from the fatal epidemic. This

man passed a night in the city, in a state of intoxication.

In regard to the origin of this endemico-epidemic, termed yellow, or "stranger's fever," much contrariety of opinion, as has been found to obtain at all periods, existed. From the report of a committee consisting of physicians of Augusta, by whom the question of its origin and cause was carefully investigated, it appears that the disease was of domestic origin, and exhibited nothing of a contagious nature. "fons et origo mali" was traced to a point called "trash-wharf,"-a slide, or inclined plane, which was erected in 1834, for the purpose of throwing the filth of the city, including dead animals, into the river. This mass of animal and vegetable matter having accumulated to upwards of 200,000 cubic feet, it was resolved by the authorities of the city to have it removed; and, accordingly, during the months of May and June, its interior was exposed to the action of the sun. Having penetrated the exterior crust, the heat evolved was so great that the workmen, although wearing thick shoes, were compelled to desist from their work, "for two hours at a time, so as to suffer it to cool." present knowledge does not, however, warrant us in saying that the same miasm which produces remittent fever is, in its more virulent state, the cause of yellow fever, or even that the latter is of paludal origin. 32

The advantage of position, as regards salubrity, is strikingly illustrated in this locality. On reference to the history of this garrison prior to 1829, it will be found that, during the period when the arsenal was situated on the Savannah, disease prevailed to so great an extent that it was necessary to abandon the post in the summer season, and encamp on the "sand-hills." The advantages of this measure were, indeed, but partial; for as it was necessary to keep a guard at the arsenal, the men were in turn exposed to this miasmatic atmosphere. Thus, in the third quarter of 1825, all the garrison, with the exception of two men, suffered from the "country fever;" and, consequently, the only benefits of a summer encampment were, that fewer cases proved fatal, and relapses were less frequent.

The comparative influence of the seasons in the causation of disease

in general is shown in the following table-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
8 first quarters 7 second " 7 third " 7 fourth "	609 493 488 359	333 213 237 102	547 432 465 284
Annual ratio	487	885	1,817

Hence each man, on an average, has been reported sick once in every six and a half months—a low ratio.

The fact that the first quarters present a higher average of sick than the third, is ascribable to the circumstance that the post had a very large command in the first quarter of 1833. The law, that an increase in the mean strength is followed by more than a corresponding ratio of disease, is one that obtains universally.

### FORT MITCHELL.

# LATITUDE 32° 19', LONGITUDE 85° 10'.

This post is situated near the Chattahoochee, about ten miles below Columbus. Occupying an elevated ridge on the west side of the river, about one mile from its banks, this position is both salubrious and agreeable to the eye. Between the ridge and the river the lands are low, but generally speaking the locality is exempt from marshes.

The diseases reported within the ten years are comprised in the

following abstract

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Mitchell, for a period of ten years.

		725	14 113 125 181 181 181 183 183 183 181 181 180 181 181 181 181 181 181 181	527
	1838	•		•
	1837	38:	826. 1 9 1.11.8.4	34
CER.	1836	103	12 . 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	113
SECOND QUARTER	829 1830 1831 1832 1833 1834 1835 1836 1837 1838	2		•
D Q	1834	108	2 3 4 5 1 10 10 10 8 8 8 8 8 8 8 8 8 8 8 8 8 8	80
CON	1833	135	10 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	74
SF	1832	7.5	27	23
	1831	83	1 1 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	19
	1830	139	1 8 7 1 . 8488 . 8	72
	1829	47	144 6 6 1 1 8 6 1 1 9	35
		799	23 3 4 4 183 183 183 27 18 88 88 88 88 88 88 88	296
	1838	0.		•
	1837		1111 1 1 1 1 1 1 1 1 1 1	•
IR.	1836	49	21 2 4	53
RTE	1835	•	March 20, Re-occupied.	•
FIRST QUARTER	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	446	21 1 1 1 1 1 4 4 4 4 4 4 4 23 60 60 33 60 60 60 60 60 60 60 60 60 60 60 60 60	390
IRST	1833	٠,	Dec. 17, 1832, Evacuated	•
1	1832	87	4 0 -888. 0	42
	1831	ಜಿ	39. 7. 4 20	61
	1830	96	1111 4 0 11808010	33
	1829	53	., ., ., ., ., ., ., ., ., ., ., ., ., .	18
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	Years -	Mean Strength	Intermittent fever Synochal " Synochal " Typhus " Diseases of the respiratory organs Diseases of the digestive organs Diseases of the brain and nervous system Dropsies system Dropsies system Venereal " Vloters and abscesses Wounds and injuries Ebriety Ebriety All other diseases	Total
	Ye	Me	ABVE D. D. D. V. S. B.	

ABSTRACT-Continued.

		516	17	•	6	30	∞ ←	12	18	14	52	140	286
	1838	•	, ,	•		•		•	•	,			1.
	1837	3	1 1	1 1	1	•	,' '	•	•	•			
ER.	1836	•		•		•	, ,	•	•	•	•		Ī.
ART	1835	35	82 -		_	10	- ,		4	7	n	, –	24
FOURTH QUARTER.	1832 1833 1834 1835 1836 1837 1838	•	t, 1	•		1	•		•	,			1.
RTH	1833	165	٠ ي	•	65	~	ကေ	₹ 41	က	၁	~	45	84
FOL	1832	65	4 4	• 1	1	r.c	က	•	2		4	, «	32
		91	, 69	1 1		es.			7	63	4	- 58	39
	829 1830 1831	57		1 (	1	•	1 0	\$ 65	က		4	. 2	44
	1829	103	9		9	9			cs.	က	က	• ह	63
		581	37		cs.	87	96	€ 6	19	16	63 G	37	396
	1838		4			,		'	•	1	•	1 1	1
	1837	36	L 4			=	es 1	•	•	cs .	4	. 1	. 33
- H	1836	1				1	1 1	•	•	•	•		
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	88	2 00		•	cs.		•	-	1	_	٠ ٩	24
QUA	1834	53	7		•	12	1		_	-	es i	1,	42
IRD	1833	130	201	•	•	92	es ,		ì~	6	က္	15	101
TH	1832	67	. 4			Ξ	•		ෙ	•	9	- 66	47
	1831	93	40		•	13	-	es.	¢5	•		- 70	48
	1830	78	es –		•	4	•	- 4	4	CS.	9	- 66	45
	1829	98	Ξ.		. –	00	6	₹ 65	-	C.S	•	23	57
	- •	1		•	ato-	tive .	and -		1	1	'	1 1	•
		,	er -	•	respir	diges	brain m -	tions	ons	esses	juries	1 0	1 2
		ngth	nt fever	fever	f the	f the	f the syste	affec	affecti	l absc	nd in	1 000	al -
		Mean Strength	Intermittent fever - Remittent fever -	Synochal fever	Diseases of the respiratory organs -	Diseases of the digestive organs	Discases of the brain and nervous system -	Rheumatic affections	Venereal affections	Ulcers and abscesses	Wounds and injuries	Ebriety	Total
	Years	Mea	Inter	Syn	Dise	Dise	Disc ne	Rhei	Ven	Ulce	Wo	Ebriety  A II other	

Under the class of diseases of the respiratory organs are comprised 90 catarrh and influenza, 5 pneumonia, 20 pleuritis, and 3 phthisis pulmonalis; under the head of digestive organs, 351 diarrhæa and dysentery, 65 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 8 epilepsy, 3 apoplexy, 8 mania a potu, and 4 nyctalopia; and under that of venereal affections, 48 gonorrhæa, and 26 syphilis.

As the total of deaths, according to the post returns, is 25, and the aggregate mean strength is 761, the annual ratio of mortality is  $3\frac{3}{10}$  per cent. Of the deaths, 19 are reported in the medical returns, viz. 3 remittent fever, 3 phthis is pulmonalis, 1 chronic hepatitis, 1 chronic diarrhea, 2 mania a potu, 2 accidental, and 7 from causes not designated;

being nearly 3 per cent.

The average of intermitting and remitting fever is very low, the former being 13, and the latter 8 per cent. There is nothing in the history of this post requiring special comment. Considering that it is a southern post, both this and the preceding one may be regarded as remarkably salubrious. The ratio of mortality is low, with the exception of 1836, the period of the Creek difficulties. In this year it is 9 per cent., owing doubtless to the exposures incident to such a state.

The following table exhibits the relative agency of the seasons in the

etiology of disease in general-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated annually.
6 first quarters 8 second " 8 third " 6 fourth "	- 799 - 725 - 581 - 516	596 527 396 286	746 727 682 554
Annual ratio	- 655	1,805	2,756

Every man, on an average, has consequently been reported sick once in every four months and a third.

### BATON ROUGE.

# LATITUDE 30° 36' N., LONGITUDE 91° 23' W.

This post is situated on the east bank of the Mississippi river, in Baton Rouge, La. This town occupies the first bluff or highland found in ascending the river—the point at which the levee or artificial embankment terminates. The bluff on which the barracks are situated is 22 feet above high-water, and 60 feet above low-water mark. There are no marshes in the vicinity; a cypress swamp, distant 15 miles north, being the nearest. The public grounds are bounded on the north by a

bayou, which empties into the Mississippi about 200 yards above the barracks. "This bayou," says Surgeon B. F. Harney, "is filled to a greater or less extent from the river, from the 1st of February to the 1st of August, of each year. It might be supposed that, as the water retires from the bayou, deposites of a nature productive of disease would take place. But experience has proven the reverse; for, as soon as the annual fall of the Mississippi commences, the 'rainy season' begins; and thus the bayou is thoroughly washed, and the deposites that might prove a source of disease are carried to the river. It also lies in a direction whence we have no winds during the sickly season."

The public grounds are undulating and well drained. The country on the same side of the river, extending north and east, is of the same character; but that lying south, together with the lands west of the Mis-

sissippi, consists of a rich alluvial deposite, low and level.

The barracks, constructed of brick, with slate roofs, were completed in 1824. The hospital, built of the same materials, was finished in 1839. These buildings are well constructed and admirably adapted for the purposes intended. The public grounds are now well shaded by trees, such as the mulberry, pride of China, &c. These trees, planted in 1824, contribute, it is believed, very materially towards maintaining the healthfulness of the station.

The diseases reported within the ten years are comprised in the

following abstract-

ABSTRACT exhibiting a condensed view of the principal diseases at Baton Rouge, for a period of ten years.

		1123	139 70 5 19 53	359	. 7 42	30 30 30 30 30	1036
	1838	•					
	1837	•				,	•
ER.	1836			•			•
ART	1835	152	115	53	9	4 6 EI	133
SECOND QUARTER	829 1830 1831 1832 1833 1834 1835 1836 1837 1838	121	112	59	.4.	4 16 •	156
ONL	1833	115	15 - 3	69	· m ·	22 5 5 5 5 5	150
SEC	1832	156	34	£ 23	63	421 45	137
	1831	251	36 23 5	- 81	41	4 18 5 65	267
	1830	204	10 10 5	57	, , 63	B 50 0 4	134
	1829	124	12 1 2 2 2	17		10	59
		1119	80 45 3 4	254 18	28 16	37 71 58 156	876
	838			1 1			
	1837	•					•
ني ا	1836			·puemi	noo tasi	No permar	1.
FIRST QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	150	14 12	37	. 7-4	9 9	121
QUA	1834	166	10 15 - 22	35		6 11 -	156
RST	1833	125	15	40	- 9 -	48600	101
FII	1832	152	E E	24	. 03	4 6 4 2 2 3 7 2	98
	1831	207	20 39	51	4	8 12 19 47	194
	1830	149		41	. 63 .	8 6 6 4	123
	1829	170	41	92	es es	13	83
	•	•	ira-	and		1 1 7 1	•
	•	ı	wer	e brain	affections	scesses injuries ases	•
	Years -	Mean Strength	Intermittent fever Synochal " Typhus " Diseases of the respiratory organs	organs Diseases of the brain and	Dropsies Rheumatic afl Venereal	Ulcers and abscesses Wounds and injuries Ebriety All other diseases	Total -
Ex.	Ä	Z	HAWFU F	A.	AND	DPMA	

# ABSTRACT-Continued.

		1027	110	100	တ	2	84		172	10	4	24	6	26	28	7	144	761
	1838	.		•	•	•	•		•	•	ı	1	•	•	•	1	1	1.
	1837			'	•		•		1	•	'	•	•	•	•	1	•	•
ER.	1836		,	٠	•	•	•		•	•	,	•	•	•	•	,	•	1
ART	1835	127	=======================================	12	•	'	9		18	•	•	es	,(	4	က	,	œ	65
FOURTH QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	125	12	17	•	,	9		37	-	1	00	C.S	4	9	•	œ	101
JRTI	1833	160	24	16	•	•	13		22	4	es	10	દર	ಣ	12	,	12	150
FOI	1832	173	20	15	4	٠	15		30	က	-	4	က		~	٠	51	143
	1831	151	7	6	•	•	23		\$3 \$0	-	•	•	•	00	6	4	33	122
	1830	196	13	15	,	ro	21		17	~	•	•	-	•	13	•	22	1=
	1829	95	17	19	4	•	•		•	•	1	•	•	7	œ	ಣ	10	69
		943	208	95	r3	7	49		212	4	લ	22	10	36	54	16	131	911
	1838		•	•		•			•	٠	•	•	•	•	•	•	•	
	1837	• 1	,	•	•	•	,			•	•	•	•	•	•	•		
R.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838		•	•	'	•				•	•	•	•	•	•	•		
RTE	1835	144	30	18	•	•	11		53	•	•	2	က	12	12	'	16	150
THIRD QUARTER.	1834	120	20	15	•	•	15		848	•	'	00	4	7	10	,	24	151
IIRD	1833	148	53	88	•	•	18	C L	95	3	લ્સ	4	•	10	7	•	40	218
TH	1832	55	50	10	•	•	•	;	41	1	•	-	_	C\$	4	દર	91	100
	1831	150	27	13	•	•	63		# 0	•	'	•	લ્ર	•	11	7	10	130
	1830	185	6	က	ro	7	•	90	2		•	က	•	•	7	13	18	88
	1829	141	6%	œ	•	•	က	-	10	•	•	~	•	2	က	٠	7	74
	Years	Mean Strength	Intermittent fever -	Remittent fever	Synochal fever	Typhus fever	Diseases of the respirato-	Diseases of the digestive	Diseases of the brain and	nervous system -	Dropsies	Rheumatic affections -	Venereal "	Ulcers and abscesses -	Wounds and injuries -	Ebriety	All other diseases -	Total

Under the class of diseases of the respiratory organs are comprised 220 catarrh, 24 pneumonia, 33 pleuritis, and 11 phthisis pulmonalis; under the head of digestive organs, 516 diarrhea and dysentery, 423 cholic and cholera, and 7 hepatitis; under the class of brain and nervous system, 10 epilepsy, 13 mania a potu, and 1 apoplexy; and under that

of venereal affections, 36 gonorrhea, and 21 syphilis.

As the total of deaths, according to the post returns, is 79, and the aggregate mean strength is 1,090, the annual ratio of mortality is  $7\frac{2}{10}$  per cent. Of the deaths, 73 are reported in the medical returns, viz: 12 congestive typhus, 10 yellow fever, 1 remittent fever, 1 intermittent fever, 1 pneumonia, 1 pleuritis, 1 phthisis pulmonalis, 5 dysentery, 3 gastro-enteritis, 8 epidemic cholera, 1 erysipelas, 1 delirium tremens, 7 ebriety, 1 epilepsy, 1 chronic visceral lesions, and 19 from causes not specified. Excluding the cases of cholera, the average mortality, according to the medical returns, is  $6\frac{2}{10}$  per cent.

The average of intermittent fever is 51, and that of remittent fever is 30 per cent. Although the ratio is not so high, for example, as that of Fort Gibson, yet the mortality from fevers of malarial origin, owing to the circumstance that remittents often assume the most malignant char-

acter, is considerably higher.

The following extract from the quarterly report, made the 31st of December, 1829, by Surgeon B. F. Harney, will afford some explanation in reference to the high mortality by which this post has always been distinguished—"Adams, of 'E' company, and Lado and Small, of 'K' company, died of intemperance, their constitutions having been destroyed thereby. Stettler, of 'E' company, a deserter and unacclimated, died of remittent fever—had chronic dysentery for several months previous to his death. Banta, a recruit of the 4th Infantry, unacclimated and a prisoner, died of yellow fever. Gaffield and Smith, of 'E' company, on guard and much exposed, the latter unacclimated, died of yellow fever. Thompson, a deserter, with bad constitution, of yellow fever. Salem, of 'B' company, of very intemperate habits, arrived here from Fort St. Philip with yellow fever; he recovered, became affected with intermittent fever, and finally died of a second attack of yellow fever. Partridge, of 'E' company, very intemperate, of remittent fever. Seven men, sent in pursuit of deserters, were, with the exception of the corporal, taken sick soon after their return, and two of these died of yellow fever."

In the second quarter of 1833, eight deaths from epidemic cholera are reported. This point seems to have wholly escaped the dreadful

ravages of this disease in the preceding year.

Prior to 1829, more especially from 1819 to 1824 inclusive, this post presents a melancholy history. The annual ratio of mortality, based on the results of six years, (from 1819 to 1824 inclusive,) is nearly 21 per cent.—a fatality unparalleled in our military annuls. In 1822, the most fatal year, the mean was almost 26 per cent.

In a recent report on the medical topography of this post, Surgeon Harney remarks—"The diseases are mostly bilious intermittents and remittents, tending to a typhoid character. The yellow fever was first

-33

known here in 1817, re-appearing in the years 1819,—'22, and '27. There were many cases in 1829, mostly confined, however, to the European Spaniards driven from Mexico. These cases were owing to their mode of living, their filth, and their crowded condition; and being

unacclimated, they were especially obnoxious to disease.

"The soldiery suffered in 1821,—'2,—'3, without assignable cause, from a disease called the *cold plague*, during which years the village was free from disease. It has not been known here since 1823. This disease prevailed in the month of May and part of June in each year. The symptoms were very similar to those of cholera, and were treated with mercurial cathartics in very large doses, sinapisms, the warm bath, &c.

"The causes of general sickness, in 1821,-22,-3, were exposure while at work on the barracks then building, intemperance, and labor in the Cypress swamp, about fifteen miles from this point, in procuring timber."

The relative influence of the seasons in the production of diseases

generally is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
7 first quarters - 7 second " - 7 third " - 7 fourth " -	1,119 1,123 943 1,027	876 1,036 911 761	783 923 966 741
Annual ratio -	1,053	3,584	3,404

Hence every man, on an average, has been reported sick once in every three and a half months.

### NEW ORLEANS.

### LATITUDE 29° 57' N., LONGITUDE 90° 14' W.

The barracks, erected in 1834 and '35, are situated on the left bank of the Mississippi, three miles below the city proper. They form a parallelogram of about 300 feet on the river, extending back 900 feet. Built of granite and brick, the quarters are commodious, dry, and well ventilated. The grounds within the parallelogram have been raised thirty inches by means of earth, the external surface consisting of a stratum of shells; intersected by ditches, these grounds are easily maintained in a dry state. The quarters are sheltered from the north and northeast winds by a forest of cypress and other trees, which, commencing about 500 yards from the river, extends back towards Lake Ponchartrain.

As the troops have until recently been always quartered in New Orleans, this city is the station to be now described. Situated on the left bank of the Mississippi in a large bend of the river, it is distant 105 miles by the channel from its mouth, and 80 miles in a direct line, southeast; it is 50 miles from the Gulf of Mexico, south; 40 miles from Chandeleur bay, southeast; 15 miles from Lake Borgne, east; and 6 miles from Lake Ponchartrain, north. The city is built upon a sloping surface, which descends gently from the river to the lakes. It is not elevated more than eleven feet above the level of the ocean; and when the Mississippi becomes full, the streets are three or four feet below its surface, protected from inundation by the dyke or levee—an embankment made from a few miles above the Balize to the high lands about Baton Rouge on the east, and to Point Coupée, seven miles above Natchez, on the west side of the river. The draining company, established for the purpose of reclaiming the marshy lands between the city and Lake Ponchartrain, have been successful in rendering a large portion of the ground fit for cultivation. There are no hills in the vicinity of the city, the surrounding country being low and flat, and the soil Cypress, laurel, and oak, the first most abundantly, are found. As the well-water of the city contains muriates of lime, magnesia, and soda, and bi-carbonate of lime and iron, rain and river water are used for culinary and all other purposes.

The annual amount of rain, on a mean of six years, is 51.85 inches. The following monthly results, based on three years' observation, are

given by Surgeon Hawkins-

January	4.66	May	2.95	September	5.60
February	2.25	$\mathbf{June}$	6.10	October	1.37
March	2.59	July	6.38	November	3.18
April	6.21	August	5.72	December	2.87

The diseases reported within the ten years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at New Orleans, for a period of ten years.

		395	23	23	14	_	27	148		٠	•	_	က	က	29	٠	ಣ	275
	1838			•			•			,	,	•	,	•	•			•
	1837	,	1	•		,							•	•	•	•	,	
ER.	988	,		1	,	1		. •		,		•	•		•	•	1	•
ART	835	115		2	•	1	•	43	?	•	•	•	•	65	C.S	•	•	54
QU.	834 1	102	ت	3	લ્ર	,	18	30	;		•	_	•	9	13	•	_	62
SECOND QUARTER.	[833]	98	4			1	6	45		•		1		٠	ro	•		65
SEC	[832]	92	14	15	12	-	1	21		•	1	,	c.s	-	6	•	C\$	77
	1831	•			•	•	•			•		•	•	1	•	•		
	830	,	•	•			•	•		•	•	•	•	•	•	•		•
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838		,	•	•	•	•	•	_	•	•	•	•	•	•	•	,	
		283	28	က	8	•	51	131		9	ı	-	6	9	12	1	က	330
	838			•	•	1			-	•		•	,	•	•	•		1
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838			•	•			-		•	,		•	•	•	•		
نہ	836 1			•	•	•		-	1		•	•	•		•	•		1
RTEF	835 1	113	91		38	•	35	ď	3		•	•	ಣ	က	63	ı	_	871
QUA	834			•		•			1	,	,	,	•	•	•	•		1
FIRST QUARTER.	[833]	1.1	4	က	œ	•	10	66	}	-		•	<b>c</b> ₹	_	က	•	,	24
FIL	832	93	œ	•	35	•	9	0.6		3	1	•	4	લ	2	•	65	86
	831	,		•	•	•	•			•	•	•	•	•	•	•	•	<u> </u>
	0881			•	•	•	•	,		•	•	,	٠	•	•	,	•	<u> </u>
	1829			•	1	•	•	-		•	•	'	•	•	٠	•		
		'	'	•	•	•	-ote	tive	and	•	•	•	•	٠	•	•	•	•
			er -	•	1	•	respir	diges	brain	m -	٠	tions	ous	esses	juries	1	es •	•
		ngth	nt fev	fever	fever	ver	f the ns -	of the	f the	syste	•	c affec	affecti	l absc	nd in	•	diseas	al •
	1 22	Mean Strength	Intermittent fever	Remittent fever	Synochal fever	Typhus fever	iseases of the ry organs -	Diseases of the digestive	Diseases of the brain and	nervous system	Dropsies	Rheumatic affections	Venereal affections	Ulcers and abscesses	Wounds and injuries	ety	All other diseases	Total
	Years -	Mea	Inter	Rem	Syn	Typ	Dise	Dise	Dise	ne	Drop	Rhe	Vene	Ulce	Wor	Ebriety	All	

		346	29	38	56	ಣ	40	5	31	35		2	S.	œ	16	,	15	308
	1838	4		٠	•	•	•		•	•	•	•	•	•	•	•	•	
	1837	•		•	•	٠	•		•		•	•	•	•		•	•	
ER.	1836	•	•	•	•	•	,			•	•	•	•	•	•	•	•	
ART	1835	95	10	9	9	_	00	7	7 22	~	•	CS.	•	CS.	٠		-	92
ı QU.	1834	96	12	63	es.	•	00	0	92	•	1	<b>cs</b>	<b>CS</b>	4	-1	•	-	99
FOURTH QUARTER.	1833	73	က	63	4	٠	16	3			•	•	က		4	•	2	44
FOL	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838				•	•				•	•	•	٠		•	•	•	
	1831	83	4	88	14	C.S	œ	3	3.6	31	•	-	•	C\$	rc	•	œ	140
	1830	•			٠	•	•		•	•	,		•	•	,	•	٠	•
	1829	•		•	•	٠.	ı		•	1	٠	•	•	•	٠		•	
		223	=	18	•	•	63	l (	င္သ	٠	٠	63	CS.	•	23	4	œ	191
	1838		•	•		•	•			•	•	•	•	٠				
	1837	•	,	•	•	•					•	•	٠	•		٠	•	
 E.	1836			•	•	•	•			٠	•	•	•	•	•	٠	'	
THIRD QUARTER.	1835	115	=	7		•	1		0.9	٠	٠	CS.	C.S	•	23	•	œ	124
QUA	1834					•	•		•	•	•	•	•	•	•	•		
IRD	1833	108		7	٠	•	70	. 1	25	•	•	٠	•	•	٠	•	•	37
TH	1832			•	•	٠				٠	٠		•	1	•	•	•	
	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838					٠	•		•	٠	•	•	•	•		٠	•	
	1830			.0	٠	•	•		•	•	,	•	•	•	•	•	•	•
	1829	•		.1	•	,			•	•		•	1	•	•	•	•	
	•		'	•	-0	•	ato-	tive	and	٠	•	•	•	•	*	•	•	•
	•		r		"	•	respir	diges	brain	m:	•	ctions	"	sesses	juries	٠	ses	
		ngth	nt for			,	of the	of the	f the	syste	•	c affer		d absc	and in		disea	1
	Years -	Mean Strength	Informittent fever	Remittent	Synochal	Typhus	Diseases of the respirato-	Diseases of the digestive	organs Diseases of the brain and	nervous system	Dropsies	Rheumatic affections	Venereal	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases	Total
	Yea	Mea	Info	Ren	Svn	Typ	Disc	Disc	Disc	n	Dro	Rhe	Ver	Ue	Wo	Ebr	AII	

Under the class of diseases of the respiratory organs are comprised 114 catarrh, 4 pneumonia, 11 pleuritis, and 2 phthisis pulmonalis; under the head of digestive organs, 290 diarrhæa and dysentery, 145 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 33 epilepsy and 1 apoplexy; and under that of venereal affec-

tions, 10 gonorrhea and 9 syphilis.

As the total of deaths, according to the post returns, is 59, and the aggregate mean strength is 486, the annual ratio of mortality is 12 per Of the deaths, 33 are reported in the medical returns; and as the mean strength, during the same period, was 312, the ratio of mortality is  $10\frac{6}{10}$  per cent. The causes of the deaths are as follows: 3 yellow fever, 1 phthisis pulmonalis, 2 chronic diarrhæa, 19 epidemic cholera, 5 epilepsy, 1 suicide, and 2 from causes not specified. Excluding the cases of cholera and suicide, the average is only 42 per The statistics given in the above abstract cannot be regarded as affording any very precise results. To avoid the sickly season, the troops were removed, every summer, to the Bay of St. Louis; and the data furnished by the year 1838 are entirely excluded, inasmuch as most of the sick consisted of invalids from Florida. The ratio of mortality is high, but the majority of deaths is the result of accidental causes. In the fourth quarter of 1831, for example, 26 cases of epilepsy are reported. This disease and cholic (27 cases) were extraordinarily severe. Of the former, "not more than 5 or 6," says Surgeon Lawson, "had ever before labored under the disease. Two of the subjects expired in the first fit; three sank, after enduring, for 18 or 20 hours, an almost uninterrupted succession of paroxysms; and several were left in a state of paralysis, which continued for some weeks." Upon investigating every probable source of these dreadful disorders, it was traced to the agency of the wine sold by the sutler, which proved to contain a great quantity of acet. plumbi.

Although the data given in the foregoing abstract of diseases are too limited to afford any definite statistical results, yet, to maintain uniformity, the table showing the relative influence of the seasons in the

causation of disease in general is given below-

TABLE exhibiting the ratio of sickness.

Seasons.		Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
3 first quarters 4 second " 2 third " 4 fourth " Annual ratio	11111	283 395 223 346	330 275 161 308	1,166 696 722 890

Hence every man, on an average, has been reported sick once in every three and a half months.

The total of deaths by epidemic cholera is 19. In relation to this disease, the following extracts from the official reports of Surgeon Thomas Lawson, the senior surgeon at New Orleans in 1832, are given. "This dreadful scourge invaded Louisiana near the close of October, 1832, the city of New Orleans being the first point attacked, and the last position maintained, by the enemy. Without pretending to determine the cause of this mysterious disease, or its mode of propagation, one fact is certain, viz. that no case of the disease manifested itself among us until the arrival in port of the steamer Constitution, which had several cases on board—a number of her passengers having already fallen victims to the disease. So fearfully rapid was the pestilence in its progress, that in less than 48 hours it reached the lowest plantation on the Mississippi, desolating almost every spot inhabited by man. Like a skilful general, it seems to have advanced at once upon the capitol, leaving the minor posts on the line of march untouched; for it was not until it had ravaged New Orleans, and desolated the lower country, that it made any hostile demonstration above the city. Whether the cause of this mysterious disease was wafted to us in a current of air down the river, or was brought among us pent up in a steamer, or whether the atmosphere of the city, which had been throughout the season very insalubrious, had reached its acme of pestilential explosion, we know not; but one thing is certain, that cholera, at least in that dreadful form which it afterwards assumed, was unknown among us until the steamer 'Constitution' arrived in port.

"One of its peculiarities, observed both above the city and in the lower country, is, that it frequently passes over a village or plantation, whilst the destruction around is terrible; and this, too, without any manifest cause, either as regards the local circumstances or the habits and condition of the people. On the east bank of the Mississippi it advanced, after scourging New Orleans and the lower country, to within a few miles of Baton Rouge; and on the west side, some distance above that point. As it was limited on each side by a range of high hills, it is more than probable that malaria exerts a powerful influence as an

exciting cause of the disease.

"In New Orleans, the effects of the epidemic were first manifested among the dissolute and the intemperate; those who were necessarily or accidentally exposed to the inclemency of the weather; those who were without the means of providing themselves with wholesome food and raiment; and the miserable occupants of the damp, filthy, and crowded hovels of the upper Fauxburg. Having desolated the suburbs, the disease invaded the heart of the city, striking down men, women, and children, indiscriminately. Here again the disease exhibited some of its eccentricities; for in many instances a house was wholly exempt from its ravages, whilst those on every side were places of mourning and distress. The occupants of the first seemed to be secure from injury under every circumstance of exposure, while the inmates of the last places could not peep out of their own windows without letting in the disease. For three days the ravages of the disease were confined to the upper Fauxburg, and the town proper. On the fourth day, however, it

appeared in the lower town with aggravated malignity, sweeping away like a torrent the poor and miserable foreigners held here against their will, whom the yellow fever had spared. The assault upon the garrison occurred simultaneously with that upon the foreigners; and, although the shock was not so sensibly felt at first, its effect upon us

was but little less severe in the end.

"On the first day and second morning, 12 decided cases occurred among the troops, of whom 3 died immediately—the others being within the control of medicine, survived the shock. One of these subjects while walking about suddenly fell to the ground, with a livid aspect; violent spasms, vomiting, and purging, quickly supervened; the disease soon ran into the stage of collapse, and terminated fatally about the eleventh To this man calomel was administered at first to the extent of 25 grains, and repeated in doses of 10 grains. To accelerate its operation castor oil was given, and warm enemata of salt and water were also employed. At one period, with the view of allaving spasm and arresting vomiting, opium was administered. In addition to these remedies, heat was unceasingly applied to the superficies of the body generally, mustard cataplasms to the arms and thighs; and to the same parts, as well as along the course of the spine, friction with the hand simply, with dry mustard, and with a liniment composed of mercurial ointment, camphor, and cayenne pepper. But it was all to no purpose; the patient, despite every effort to save him, steadily progressed towards dissolution.

"Another man was afflicted in the first instance with excessive vomiting and great commotion in the bowels, which symptoms subsiding or yielding to the influence of an emetic of sulph: cupri and ipecac: combined, the patient became tranquil, and remained some length of time apparently in a safe condition. After the lapse of some hours, however, the pulse, which was before very perceptible, began to sink, the extremities became cold, and spasms ensued; the vomiting then recurring with inordinate purging, the disease was soon ushered into a stage of collapse, and the man died after lingering to the thirtieth hour. To this man, after the operation of the emetic, and the subsequent subsidence of the vomiting, I gave calomel in repeated doses of ten grains, and persisted in this course until the pressing and terrible symptoms, which afterwards ensued, suspended my regular operations and compelled me to desist from my purpose.

"In this instance, also, heat was applied to the extremities and along the spine, blisters and cataplasms to the arms and thighs, and over the thoracic and abdominal regions, and friction to every part of the body not already under the action of some other agent. These remedial means and personal efforts were persevered in with the view of keeping up the warmth and continuing the action on the superficies of the body, with the hope of prolonging life until the calomel could reach the secretory organs, and restore them to a healthy action. In the hope, too, of arresting the vomiting, I repeatedly administered a spoonful or two of mint julap, occasionally combined with laudanum; and, with the view of arousing the system to a state of re-action, or at least of

sustaining its sinking energies for a while, I entered upon the administration of some of the diffusible stimuli. Soon finding, however, that these last produced no useful result, while they occasioned the most intolerable pain along the esophagus and in the stomach, I desisted from their further use. In this case, as in the preceding one, all that was accomplished was the partial remission of spasm, and this was effected more particularly by friction with the warm hand of the attendants, vigorously and unremittingly applied: no actual impression could be made upon the system; nothing could stay, even for a moment, its onward tendency towards dissolution.

"A third man having reported to me that he had just been taken with diarrhea, I was in the act of administering to him a dose of rheubarb and calomel, when a flood of rice-water fluid came from him, succeeded by vomiting and spasm; and the stage of collapse quickly afterwards supervening, the patient was hurried off by the sixth hour. The same remedies, or nearly the same, were resorted to in this, as in the

preceding cases, with but little hope of success.

The fourth of the 12 men that came under my care, and whose case eventually terminated fatally, was affected with vomiting, which producing great exhaustion, his extremities became cold, the pulsation at the wrist ceased, or nearly so, and spasm ensued. The irritability of the stomach, however, having been allayed by small draughts of chamomile tea, the heat restored to the surface of the body, and the circulation brought back to the extreme vessels, the patient recovered from the shock; and under the influence of calomel in repeated small doses was steadily advancing towards health, when, by some neglect or imprudence, as I afterwards understood, secondary inflammation was induced,

which eventually proved fatal."

Having detailed, also, several of the cases which terminated favorably under the mercurial remedies, combined occasionally with opium and camphor—the method of treatment pursued throughout—the following remarks are made in conclusion—"In support of the position that persons debilitated by previous disease are peculiarly liable to an attack of cholera, I can aver that many of those affected were convalescents from yellow fever, or some other affection. I am also convinced that those constantly with the sick, respiring the atmosphere of the hospital, acquire a similar liability to an attack, the opinion of many physicians to the contrary notwithstanding. The disease seized me on the third morning after its appearance among the troops, having exerted myself continuously in the hospital. On the following day the hospital steward was attacked; two acting stewards took the disease successively, and all the attendants were at one period or another affected with the disease. am now just regaining my health; the hospital steward is not yet well, and the two acting stewards, and four of the six attendants, died.

"It is true, the steward and myself, having for the period of six weeks devoted our time by day and by night to the numerous cases of yellow fever among the troops, were much exhausted; as regards the attendants, however, this was not the case. These last were fresh and vigorous, being frequently relieved from their duties of watching, &c. &c."

In the State of Louisiana, the epidemic exhibited itself in its most malignant character. In New Orleans the victims numbered about

6,000, the population being then perhaps 55,000.

Cholera still continued its visitations upon this devoted city. first quarter of 1833, one death is reported from this cause. In the report ending the 30th June, it is remarked by Surgeon McMahon, that "the disease appeared sporadically here in April; it gradually increased until towards the close of May, when it assumed the epidemic form, committing the greatest ravages among all classes of citizens. timely removal of the garrison saved it from total destruction. ruinous condition of the hovel in which the troops were stowed, the want of a suitable hospital, and the enfeebled condition of both officers and men, were in themselves sufficient to warrant the anticipation of such a result." In this quarter there are reported 44 cases of cholera, three of which proved fatal. In the report of the third quarter, Surgeon McMahon remarks, that "yellow fever, or rather a complication of this disease and cholera, appeared shortly after the subsidence of the latter. Amongst the citizens, the average mortality from it has been about 70 per day up to this time." The command having been seasonably removed, none were present but a detachment of recruits, and several staff officers with their families. In the second quarter of 1834, there are again reported 3 deaths from spasmodic cholera. This report ends on the 15th May, the period at which the command departed for its usual summer encampment.

With the exception of the summer months, called emphatically the "sickly season," very little disease prevails at New Orleans. It is at this period that that fatal malady—yellow fever—is apt to make its visitation. There are but 3 deaths reported from this cause, owing to the circumstance that the troops were generally removed in May to the bay of St. Louis. In the third quarter of 1835, one death from yellow fever is reported at the bay of St. Louis, nine cases of the disease having been contracted at New Orleans by the troops ordered there to suppress an

apprehended servile insurrection.

As this disease is one of more than ordinary importance, and frequently assumes a different character, the following extracts, based upon prac-

tical knowledge, cannot be otherwise than interesting-

In a report, dated October 5th, 1832, just preceding the invasion of Louisiana by cholera, Surgeon Lawson says: "The diseases of New Orleans, during this whole summer, have been attended with symptoms of uncommon malignity. Intermittents and remittents have been very unmanageable, being complicated with determinations of blood to the brain, the lungs, and other important organs; and in some instances the congestions have been so great as to destroy life in two or three days. These fevers, attended with an irregular form of dysentery, have been very fatal to the white creoles, and to the black population generally, whether natives or emigrants; to the former, because blood-letting and other efficient means were not employed at the onset of the disease; and to the latter, for the reason that they did not early enough, or perhaps at any time, receive the necessary attention.

"Yellow fever, which made its appearance late in the season, is of a very aggravated character; but it is, in most instances, a clearly developed disease of high arterial action, manifestly requiring one or more full bleedings, and an uninterrupted course of cathartic medicines for four or five days, or until the fever subsides. Calomel is the cathartic commonly employed, and it is decidedly the most efficient remedy. After the abstraction of from 16 to 24 ounces of blood, this medicine, to the extent of 20 or 25 grains, is prescribed, and for several days the dose is repeated, aided each time by castor oil and enemata according to circumstances. After the first day, the calomel, in addition to its special administration as a purgative, is prescribed in doses of five grains every three hours, with the view of irritating the salivary glands, and thus There is no danger of creating a diversion from more vital organs. prostrating the patient by excessive purgation, as it is very difficult to excite the intestinal canal into action, and to maintain it so subsequently. If the purgatives, on the first and second day, procure full and frequent discharges of black fætid matter, consisting of indurated fæces, clotted bile or blood, the progress of the disease is generally at once checked; and afterwards, upon the supervention of ptyalism, the course of the disease is entirely arrested. Should the cathartics, however, fail to perform their office well on the first two days, the disease advances steadily, threatening destruction at every step to some vital organ. Under these circumstances we must resort to v. s. again and again, and redouble our efforts to excite the peristaltic action of the bowels. After the second day, blisiers may be employed with great advantage to arrest vomiting, (which is frequently, though not universally, a distressing symptom,) to relieve gastric pain, or to act as a revulsive of cerebral excitement. The therapeutic means detailed, in connexion with diluents and cold ablutions, constitute the main and perhaps the only remedies required in Tonics, in most cases, are not necessary; none but the mildest, such as infusion of camomile, can be administered with advantage; the more powerful, such as sulphate of quinine, are absolutely inadmissible. This disease runs its course in a short time, either proving fatal in a few days by a concentration of its force on some one organ, or being itself vanquished on the fifth or seventh day. Having once yielded, the disease seldom renews the conflict.

"By far the most fatal disease of Louisiana, however, whether in our city or the low lands of the country, is the congestive form of fever, or, as it is called here, the cold plague. It is an insidious enemy, attacking most commonly the weak and enfeebled, and those laboring under mental depression. In many instances, the subject of the disease, before he himself or those around him are aware of it, becomes cold in the extremities, and on the superficies of the body generally, with the exception perhaps of the region of the chest; the blood retires to the interior of the system, and the patient is at once prostrated. The vital organs being overwhelmed, the system cannot of itself react, and not unfrequently all the means of art are of no avail in removing the load of oppression. There are other instances, however, in which the disease, although always insidious in its invasion, and never without

danger, is less severe in its attack. In these cases the system may, with a little assistance, react efficiently, (it seldom of itself makes a successful effort,) and after a protracted struggle prevail over the disease. Under the first form of the disease, the primary indication seems to be to restore the circulation to the extremities by the application of hot water to the feet and legs, and blisters and sinapisms to the extremities and other parts of the body, by constant and long continued frictions with stimulating substances, and by repeated doses of the diffusible stimuli. ing restored the circulation to the extreme vessels, and heat to the surface. our next object will be to relieve the engorged organs by repeated small bleedings consecutively increased. These efforts, aided by the operation of one or more cathartics, will place the patient in a fair way for recovery, when the subsequent treatment will depend altogether upon existing circumstances. In the second modification of the disease, blood must be taken away immediately, and its abstraction continued until the congestion is relieved. Calomel, as a purgative, may at once be given, and repeated perhaps even twice with advantage.

This terrible disease invaded our damp, crowded, and ill-ventilated prison-room, and instantly struck down two or three of its inmates. One of these, who was attacked after one o'clock, was found in the morning motionless, pulseless, and senseless; nay, he scarcely breathed. He was immediately put into hot water up to the knees, and was well rubbed over the body with warm salt and other stimulating substances, whilst diffusible stimuli were freely administered; but it was all to no purpose; in spite of every effort to resuscitate him, he quickly succumbed. He once, for a moment, opened his eyes and nodded assent to something that was said or done to him, but as I was preparing to bleed him he relapsed into a state of insensibility, and passed away without another sign of life. In another case, the circumstances of the attack were similar but less severe. In this instance, the system reacted in some measure, but it was a feeble effort, and the patient expired in

the struggle."

And in a report, dated New Orleans, August 6, 1839, Surgeon H. S.

Hawkins says:

"The S. W. and S. E. winds prevail during the five months, from April to August, and N. E. winds in September. It is to be remarked that E., N. E. and S. E. winds come from the Gulf of Mexico, over an immense tract of low swamps, and that the prevalence of N. and E. winds in July, August, and September, is always attended with the epidemic yellow fever. In fact, these three months are the only ones that can be considered as proper seasons of disease, that is, the cause of epidemic yellow fever is produced during these months. Its ravages may and do extend into October; but when there has been no epidemic during August and September, strangers are not as liable to disease in October. It has also been remarked that, during an epidemic, for example in September, if the wind prevails steadily for a few days from the S. W. or W., the disease seems to be checked, fewer new cases occur, and those who are sick recover more readily. If, after this state of things, the wind shifts around again to the N. E., the disease resumes

its virulence, cases occur more frequently, and those who are convales-

cent are suddenly thrown back, and frequently succumb.

"The yellow fever of this climate, then, may be traced to the following combined causes: 1, low stage of water in the Mississippi, leaving its banks with the deposits brought from the upper country exposed to the action of the sun; 2, decomposition of vegetable matter in the swamps in the rear of the city; and 3, the prevalence of E. and N. E. winds. These winds come not only loaded with miasmata from the swamps which they traverse, but are cold and tend to produce chills, rendering the system more liable to be impressed with the other causes incident to the climate, such as sudden alternations of cold showers to a burning sun. In confirmation of this opinion, it is remarked that a contrary state of things, to wit, high stage of water in the river and the prevalence of S. W. and W. winds, are not attended with epidemic The summers of 1837 and 1838 are good exemplifications of these two states of the climate, the former being noted for the prevalence of yellow fever in its most virulent form, the latter being free from any disease of an epidemic character. The present summer (1839) threatens another epidemic. In fact, at this date, it has already commenced with a state of river and atmosphere above described as productive of disease. Many cases have already occurred of as violent and malignant a character as those in the beginning of the epidemic of 1837.

"The yellow fever produced by the above causes, may be succinctly described thus: Pains in the lower extremities and loins, and dull, full, and uneasy sensations about the head. Lassitude and disinclination for food admonish the person of his danger. In a short time succeeds a chill, more or less severe, followed by fever of the remittent type, but with slight and generally very indistinct remissions, which, if not checked on its first appearance, finishes its course by the death of the sufferer in five days, and sometimes in less time. Besides the general fever, local affections are observed, particularly in the brain, liver, spleen, and the mucous membrane of the stomach and bowels. Black vomit, its most dreaded characteristic, is the death-warrant of the patient, so very rare

is recovery after this symptom has appeared.

"The remedial agents are the following: If admissible by the state of the pulse, stage of the disease, &c., general blood-letting—cups or leeches to the back of the neck or temples, and over the stomach and bowels, are almost always necessary. Evacuations from the bowels to be obtained by mild purgatives and enemata. When the excitement is unequally distributed, warm mustard baths to the lower extremities, and ice to the head, are indicated. Ice pounded and exhibited internally is also found serviceable. Mercury is not deemed either essential or at all requisite, except possibly as a mere purgative. Blisters and sinapisms to be used pro re nata. The above is a mere outline of the general treatment adopted, as particular cases require different modes of treatment.

"As a general remark, it may be stated that persons who have once had the yellow fever in this climate are not again subject to it."

# FORT PIKE, PETITE COQUILLE, OR PETITE, COQUILLES.

LATITUDE 30° 10', LONGITUDE 89° 38'.

The island of Petites Coquilles, as its name imports, seems to have been originally formed of a congeries of small shells, with an admixture of earthly deposite, based on a substratum of argillaceous earth, rendered black or blue by the oxide of iron. The post is situated on the northern margin of this alluvial island, which divides Lake Borgne from Lake Ponchartrain, the waters of which communicate by means of the passes Rigolets and Chef-menteur, exhibiting an area whose diameter from north to south is about 7 miles, and from east to west 12 miles. distant about 35 miles northeast from New Orleans. The island is intersected with tortuous bayous resembling artificial canals. beds are never exposed to solar action, being under the influence of the tides, they are at no time a source of miasmata. The natural elevation of the surface of the island above the lake no where exceeds two feet. The soil is fertile, being well adapted for the cultivation of vegetables. In the summer, the prevailing wind is from the Gulf of Mexico. This tropical east wind prevails with such constancy, that the trees on the shores of the lakes and the gulf have acquired an inclination from the sea, supposed to be the effects of its continued action at the period when their growth is most rapid.

Three posts more remain to be described south of this point, situated in a region comparatively of recent formation. It may be important, therefore, to determine the laws which obtain in this respect. A discoloration of the water of the ocean from the deposites of the Mississippi, when 30 miles distant from its debouchure, is perceptible. As the coast is approached, it is found that the bed of the ocean rises one fathom in every mile—the result of the alluvial deposites from the river. As the bed of the ocean in deep water is not disturbed by the force of the billows, this law is found to hold generally. In shallow soundings, however, the soft deposite is thrown, by the force of wind and wave,

into ridges and ravines.

The delta of the Mississippi, according to the account of a pilot who has lived there 19 years, has advanced by its deposites, during that period, two and a half miles into the Gulf of Mexico. As the outlets of the Mississippi comprise a line of about 100 miles along the coast, the alluvial lands between these mouths give an addition of 250 square

miles, in 19 years, to our continent.

The bar at the mouth of the river keeps pace with this encroachment upon the ocean. Nineteen years ago, it was two and a half miles further inland with 12 feet of water. In its present position it has 14 feet, whilst the place of the former bar has 30 feet water. By the operation of the same principle, we find at New Orleans, at which point the shallow bar of the river some centuries ago may have existed, water 30 fathoms in depth. Following out this theory of the deposition of alluvion, it would be interesting to determine the change produced in 5,000 years.

When these deposites of alluvial matter once rise to the surface of the water, vegetation rapidly succeeds. Under the genial influence of the sun, all the seeds germinate; those of an aquatic nature live and flourish, whilst the rest quickly perish. As the deposites of mud are now more effectually intercepted, the soil becomes more dry and firm; plants of various kinds begin to spring up, and by and by large trees appear; whilst here and there are still found marsh and swamp, intersected by lagoons and bayous. Thus has the Mississippi constantly pushed forward her delta, gradually encroaching upon the domains of Neptune.

Thirty or forty yards from the Mississippi is what is called the second bank, which is higher than the lands behind—a feature common to all This admits of a ready explanation. Whenever the river overflows its banks, the water, no longer confined to its channel, is diminished in velocity; and as the transportation of alluvion depends upon this rapidity, it is at once deposited—a result favored by the stems and leaves of vegetables, which perform the part of so many strainers.

As this alluvial soil presents the most luxuriant vegetation, it is here that the pioneer of civilization first strikes his axe into the mighty oak of the forest; and it is here that the Destroying Angel makes his most

desolating visitations under the form of frebile endemics.

The low lands contiguous to plantations which border the Mississippi, extending back generally from one to two miles, are annually inundated. It is only when the levee, or embankment, gives way that the plantations are overflowed. The waters generally overflow their banks in May, and subside in the latter part of August. During the intervening period, these lands afford excellent pasturage for cattle and wild animals. It is by means of creeks and bayous that the water of the Mississippi, in times of freshets, mostly escapes; and as the floods subside, part of it returns to the river by the same channels or drains. Much the greater part, however, is left to disappear by absorption and evaporation. the Balize, the difference between the highest and lowest stage of water is about 3 feet; at New Orleans, about 12 feet; at Baton Rouge, 25 feet; and thence, to the mouth of the Ohio, it gradually increases to 45

The diseases reported within the ten years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Pike, for a period of ten years.

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Under the class of diseases of the respiratory organs are comprised 59 catarrh, 11 pneumonia, 13 pleuritis, and 7 phthisis pulmonalis; under the head of digestive organs, 60 diarrhea and dysentery, 39 cholic and cholera, and 5 hepatitis; under the class of brain and nervous system, 5 epilepsy, 1 coup de soleil, and 7 mania a potu; and under that of

venereal affections, 1 gonorthea and 6 syphilis.

As the total of deaths, according to the Adjutant General's returns, is 11, and the aggregate mean strength is 426, the annual ratio of mertality is  $2\frac{c}{10}$  per cent.; but, excluding the year 1838, in which the command consisted of men from Florida, the average is reduced to 2 per cent. Of the deaths, 7 are reported in the medical returns, viz. 2 remittent fever, 1 phthisis pulmonalis, 1 sudden, 1 unknown, 1 gunshot wound, and 1 drowned. Excluding the last two cases, the ratio is

13 per cent.

The average of fevers of malarial origin is very low, that of intermittent fever being 19, and that of remittent fever 7, per cent., whilst there are but two deaths from the latter disease reported. The health-fulness of this post compared with that of Fort Wood, to be next described, is remarkable. The distance between them is not more than seven miles, and they are apparently exposed to the influence of similar external agents. They are both surrounded by marshy low lands; but Fort Pike is encompassed by salt water, whilst Fort Wood communicates with the immense swamps that skirt the Mississippi. Moreover, the garrison of the latter has direct communication with New Orleans, which renders very easy the introduction of ardent spirits, whilst the troops of Fort Pike, on the contrary, are isolated, preventing all clandestine intercourse.

The remarkable salubrity of this post has, at all times, been a matter of comment. In a well-written report on the medical topography of this post, made by Post Surgeon E. H. Bøll, in 1821, it is shown that, since the establishment of the old post of Petite Coquille in 1811, the station has been extraordinarily healthy. Again, in 1835, a communication is made by the commanding officer, giving an abstract of the diseases and deaths for the period of ten years, (from 1825 to 1834 inclusive.) It is shown that only eleven deaths have occurred; and that although yellow fever was prevalent in New Orleans and the surrounding country each year, yet no case appeared at this post, and that whilst cholera was perhaps as fatal in New Orleans and Louisiana generally as in any other part of the world, the disease at this point was wholly unknown.

The relative influence of the seasons in the production of diseases

generally is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
7 first quarters 7 second " 6 third " 6 fourth "	- 464 - 395 - 323 - 323	155 155 170 98	334 392 526 303
Annual ratio	- 376	578	1,537

Hence each man, on an average, has been reported sick once in every seven and three-fourths months.

# FORT WOOD.

### LATITUDE 30° 05' 15", LONGITUDE 89° 51' 15".

This post is situated on the west side of the pass Chef Menteur, the southern boundary of the island of Petite Coquille. It is surrounded by marshy low lands, and is under the influence of the immense swamps that skirt the Mississippi.

The diseases reported within the ten years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Wood, for a period of ten years.

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Under the class of diseases of the respiratory organs are comprised 156 catarrh, 3 pneumonia, 6 pleuritis, and 1 phthisis pulmonalis; under the head of digestive organs, 148 diarrhæa and dysentery, 141 cholic and cholera, and 1 hepatitis; under the class of brain and nervous system, 5 epilepsy, 2 apoplexy, 6 mania a potu, and 1 nyctalopia; and

under that of venereal affections, S gonorrhea and 5 syphilis.

As the total of deaths, according to the Adjutant General's returns, is 25, and the aggregate mean strength is 335, the annual ratio of mortality is  $7\frac{5}{10}$  per cent. Of the deaths, 21 are reported in the medical returns, viz: 8 yellow fever, 2 remittent fever, 1 typhus, 1 pleuritis, 2 dysentery, 1 enteritis, 2 malignant cholera, 1 mania a potu, 1 asphyxia from cold, and 2 from causes not designated. Excluding the deaths from cholera and asphyxia, the ratio, according to the medical returns,

is  $5\frac{1}{10}$  per cent.

Ten of the deaths are reported in 1829. In the second quarter, the garrison, owing to the unhealthiness of this post in the summer season, encamped at Shieldsborough, on the bay of St. Louis, Mississippi. At this point, yellow fever made its appearance among the troops in the third quarter, 46 cases and 8 deaths being reported. "The disease," says Assistant Surgeon Liniug, "commenced on the 5th August, and by the end of the month all the officers and men present, with the exception of four privates, were attacked. Major Z., who was absent on a court-martial at Pensacola, returned on the 31st August, and took the disease on the fifth day thereafter. Lieutenant S. died of a violent type of the disease of five days' duration. The treatment was on the mercurial plan, aided by opium, serpentaria, and epispastics. Several died of black vomit. The orderly sergeant of the company threw up black vomit for four successive days, but finally recovered."

As the command occasionally abandoned the post, it is impracticable to arrive at precise statistical results. It may be justly classed among our most insalubrious stations. The annual average of fevers of malarial origin is high, that of intermittent fever being 76, and that of remittent

fever 27, per cent.

The relative influence of the seasons in the causation of disease in general is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
7 first quarters - 7 second " - 7 third " - 7 fourth " -	380 328 307 320	350 265 377 244	921 808 1,228 763
Annual ratio -	, 334	1,236	3,700

Every man, on an average, has consequently been reported sick once in every three months and a quarter.

# FORT JACKSON.

# LATITUDE 29° 29', LONGITUDE 89° 71'.

This post is situated on the west bank of the Mississippi, in Plaquemine bend, about 70 miles below New Orleans.

The diseases reported within the ten years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Jackson, for a period of ten years.

			123	18			9	_	14				_		.,	_	١	4	39
		1838			•	٠	,	•	,		•	,	•	•	•	•	•	'	
		1829 1830 1831 1832 1833 1334 1835 1836 1837 1838	•		•	1	•	•			-	•	•	•	•	,	•	•	•
	ER.	1836	•		•	•	•	,	•		•	•	•	•	•	•	•	1	•
	SECOND QUARTER.	1835	•	•	٠	•	•	•	•		•	•	•	•	•	٠	1	1	-
-	o Qu	1834	•	•	•	٠	٠	•	•		•	•	1	•	•		•	1	
	CONI	1833	•		•	•	•	•	•		١	•	•	•	•	•	•	'	
	SE(	1832	55	9	_	_	٠	-	9	(	33 1	<b>-</b>	က	-	'	€3	•	_	25
		1831	29	12	٠	•	'	ro	00	•	<b>-</b>	•	က	4	က	7	•	က	43
		1830	•	•	•	•	٠	,	•		•	•	•	1	•	•	•	•	
-		1829	•		•	,		1	•	, ,	•	•	٠	٠	•	•	,	•	•
			218	18	_	~	_	14	43	•	3 6	0	10	•	G3	7	,	41	143
		1838		•	•	•	,	1	•		•	•	•	1	'		,		•
		1837	'		•	•	'	1	•		1		•	1	•	•	•	•	,
	F.	1836	•		•	•	•	•	•		•		•	1	١	•	1	•	'
	RTE	1835	<b>29</b>	13	•	-	_	2	18	-	٠,	٦.	4	•	7	4	•	53	72
	FIRST QUARTER.	1829 1630 1831 1832 1833 1834 1835 1836 1837 1833	45	•	•	•	•	က	10			. (	3.5	•	•	cs.	•	4	123
	RST	1833	33	က	•	•	•	-	•		•		_	•	•	•	•	12	17
	F	1832	69	cs.	_	•	1	5	15	-	٠.	3 (	n	,	-	_	•	63	33
		1831	•	•	•	٠	ı	•			•	•	•	'	·	•	•	'_	'
	1	1830	•	•	•	•	•	•	•			•	•	•	•	•	•	•	'
		1829	•	•	•	•	,	•	•			•	•	•	•	•	'	•	. '
		•	•		•	٠	•	-ato-	tive.	and	•	•	1	1	1	•	,	•	
			•	rer -	•	•	١	respir	diges -	brain	- m	١.	ctions	3	cesses	juries	•	es -	•
			ngth	nt fev	fever	fever	ever	of the	of the	of the	ssyste	. :	c affe	•	d abs	and ir	•	diseas	Total -
		13	Mean strength	Intermittent fever -	Remittent fever	Synochal fever	hus fe	Discases of the respiratory organs -	Diseases of the digestive	Diseases of the brain and	nervous system -	Uropsies	Rheumatic affections	Venereal	Uleers and abscesses	Wounds and injuries	ety	All other diseases	Tot
		Years	Mea	Inte	Ren	Syn	Typ	Dist	Disc	Disc	á f	Uro	Rhe	Ven	Ule	Wo	Ebricty	All	

		196	33 33 33 34 68	144
	1838	•	1111 1 1 1 1 1 1 1 1 1 1 1	•
	1837	•		1
ER.	1836	•		•
ART	1835			•
r QU	1834	48	.8 4 65	33
FOURTH QUARTER.	829 1830 1831 1832 1833 1834 1835 1836 1837 1838	38	OH, H H H H, H, H,	Ξ
FOU	1832	54	011 . 4 8 . 8 . 4 . 1	37
	1831	56	8	22
	1830			
	1829	•		•
		109	889	152
	838	•		-
	1837			•
2	839			•
THIRD QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838			1
QUA	1834			•
IRD	1833			•
TH	1832	55	47	28
	1831	54	21	74
	1830	•		•
	1829			ı
	•	•	rira- tive and	•
	•	•	ver -  " " " e resp e diges brain em - ctions " cesses qiuries	•
	•	ngth	of the sans of the sans of the caffee caffee d abscund in disease	•
	Years -	Mean strength	Intermittent fever Remittent " Synochal " Typhus " Diseases of the respira- tory organs organs organs Diseases of the brain and nervous system Dropsies Rheumatic affections Venereal " Ulcers and abscesses Vounds and injuries Ebriety All other diseases	Total
	Ye	Me	Part Tyy Tyy Tyy Tyy Tyy Tyy Tyy Tyy Tyy Ty	

Under the class of diseases of the respiratory organs are comprised 14 catarrh, 5 pneumonia, 11 pleuritis, and 2 phthisis pulmonalis; under the head of digestive organs, 61 diarrhæa and dysentery, 42 cholic and cholera, and 3 hepatitis; under the class of brain and nervous system, 1 epilepsy, and 5 mania a potu; and under that of venereal affections, 4 gonorrhæa, and 3 syphilis.

As the total of deaths, according to the post returns, is 14, and the aggregate mean strength is 224, the annual ratio of mortality is  $6\frac{1}{10}$  per cent. Of the deaths, 9 are reported in the medical returns, viz. 2 congestive typhus, 1 pneumonia, 2 bilious cholic, and 1 chronic diarrhæa, 1 cholera, 1 dropsy, and 1 mania a potu, exhibiting a mortality of  $5\frac{1}{10}$ 

per cent.

The annual mortality, although high, is below the actual average; inasmuch as these statistics embrace only 4 four years, in two of which the troops were removed to a salubrious position during the sickly season. "This post," says Assistant Surgeon Burton Randall, "is three months inundated, and six months exposed to violent diseases. The water retires about the first of June, and leaves a large deposit of alluvion, which inevitably gives rise to violent fevers." The annual ratio of fevers of malarial origin is high, although, for the reasons above stated, below the actual average, that of intermitting fever being 114, and that of remitting fever 15 per cent. No death, however, is reported from these diseases. The posts on the lower Mississippi, as regards disease, present a remarkable contrast in the seasons; one half the year being extraordinarily healthy, and the other moiety correspondingly insalubrious.

The following table exhibits the comparative influence of the seasons in the production of diseases in general—

Ratio per 1,000 of Seasons. Mean strength. Number treated. mean strength, treated quarterly. 4 first quarters, 218 143 656 2 second 132 68 515 2 third 109 152 1,394 4 fourth 196 141 735 Annual ratio 164 507 3,091

TABLE exhibiting the ratio of sickness.

Every man has consequently, on an average, been reported sick once in nearly every four months.

# FORT ST. PHILIP

Is situated on the Mississippi, at the mouth of Plaquemine river, directly opposite the post just described. As the post was abandoned on the 7th May, 1831, the records are too meagre to enter into regular statistical details. This station was always very insalubrious in the summer season.

d/

The details pertaining to each post having been completed, the

general results of the class will now engage attention.

The mortality of each post, and its relative degree of sickness, based on the statistics furnished during the period of ten years, are exhibited in the following table—

TABLE exhibiting the mortality of each post, and the relative degree of sickness.

	Mean aggregate strength.	Deaths per Adjutant General's returns,	Deaths per medical returns.	Total of cases reported.	Ratio per 1,000 of mean strength, under treatment annually.
Augusta Arsenal	487	18	17	885	1,817
Fort Mitchell	655	25	19	1,805	2,756
Baton Rouge	1,053	71	65	3,584	3,404
New Orleans	312	40	13	1,074	3,442
Fort Pike	376	11	6	578	1,537
" Wood	334	23	19	1,236	3,700
" Jackson	164	14	9	507	3,091
Jackson					2,001
Aggregate	3,381	202	148	9,669	-
Ratio per 1,000 -	•	53*	44	-	2,860

The annual ratio of mortality, according to the medical reports, is  $4\frac{1}{10}$  per cent., and according to the post returns,  $5\frac{3}{10}$  per cent. As in the preceding classes, the deaths from epidemic cholera (8 at Baton Rouge, 19 at New Orleans, and 2 at Fort Wood) have been excluded in both calculations; and in the medical returns, those deaths also reported under the heads of drowned, frozen, and suicide. The ratio per 1,000 of mean strength annually under treatment being 2,860, it follows that every man, on an average, was on the sick-list once in a little upwards of every four months. Assuming this ratio as an index of the comparative salubrity of the several posts constituting this class, it is found that Fort Wood exhibits the highest, and Fort Pike the lowest extreme. Although the ratio annually sick is lower in this class than in the preceding one, yet the mortality, owing to the circumstance that fevers are of a more malignant nature, is higher.

In further illustration of the diseases of this region, showing the relation of season and climate with morbid action, the general results

obtained from this class will now be exhibited.

<sup>\*</sup> The aggregate mean strength, according to the post returns, is 3,810.

DISEAS	ses.			Augusta Arsenal.	Fort Mitchell.	Baton Rouge.	New Orleans.	Fort Pike.	Fort Wood.	Fort Jackson.	Total.	Aggregate mean strength.	Ratio of eases per 1,000 of mean strength.
INTERMITTEN	T FE	EVER.											
Ti				13	00	80	90	10	0.4	10	000	00*/0	62
First quarter Second "	-	-	-	18	23 14	139	28 23	13	64	18 18		$\frac{3872}{3591}$	77
Third "	-	-		36	34	208	11	23	104	89		2974	170
Fourth "	-			6	17	110	29	13	40	62		3087	90
1 outth	-	-	-		- 17			10	40	- 02	~11	3001	- 50
Annual ratio	-	-	-	73	88	537	91	71	252	187	1299	3381	385
REMITTENT	FEV	ER.											
First quarter	_		-	11	3	45	3	2	1	1	66	3872	17
Second "		-	-	35	13	70	23	9	18	1		3591	47
Third "	-	-	_	27	25	95	18	9	67	14		2974	86
Fourth "	-	-	_	6	9	100	38	7	5	9		3087	56
Annual ratio	-	*	-	79	50	310	82	27	91	25	664	3381	196
SYNOCHAL	FEVI	en.											
First quarter	_	_	_	6	4	3	81	_	1	1	96	3872	25
Second "	_		-	4	25	5	14	3	2	i		3591	15
Third "	-		-	_	_	5	-	2	1			2974	3
Fourth "		-	-	8	-	8	26	_	2	_		3087	14
Annual ratio	-	-	-	18	29	21	121	5	6	2	202	3381	60
TYPHUS	FEVE	R.											
First quarter	_		-	_	_	4	_	_	1	1	6	3872	2
Second "	_	-	-	_	_	19	7	_	_	^		3591	6
Third "	-		-	2	_	7	_	_	_	_		2974	3
Fourth "	-	-	-	-	-	5	3	_	-	1	9	3087	3
								-					
Annual ratio	-	-	-	2	-	35	4		1	2	44	3381	13
DIARRHELA AND	DYS	ENTE	RY.										
First quarter			_	28	129	160	100	6	41	22	486	3872	126
Second "	P	_	_	46	114				39	8		3591	135
Third "	10	_	-	35	87				26	14		2974	117
Fourth "	e	-	-	6	21				42	17		3087	
Annual ratio	-			115	351	516	290	60	148	61	1541	3381	456
				1									
					1		1	1	1				/

seasons in the production of morbid action, &c.

			Ar-	_;	. 1	. 1				- 1	÷	8 4 3
			A	Fort Mitchell.	Baton Rouge.	New Orleans.	aî l	-jo	Fort Jackson.		Aggregate mean strength.	Ratio of cases per 1,000 of mean strength.
DISEAS	SES.		ata al-	Mit	R	OH	Fort Pike.	Fort Wood.	ack		reg	of 1,00 stre
			Augusta senal.	rt ]	ton	₽	rt J	H	rt J	tal.	Age an	ar is
			Au	Fo	Ba	N.	Fo	Fol	Fol	Total.	mea	Rai
CATARRE AND I	NFLU	ENZA.									_	
First quarter	_		61	64	77	49	30	68	6	355	3872	92
Second "	-		10	14	41	22	6	26	2		3591	34
Third "	-		8	-	36	5	6	22	_	77	2974	.26
Fourth "	-		7	12	66	38	17	40	6	186	3087	60
Annual ratio	-		86	90	220	114	59	156	14	739	3381	218
PNEUMO	NIA.											
First quarter	-		7	2	17	_	3	2	2		3872	9-
Second "	-		7	1	2	3	3	- 1	1		3591	5
Third "	-	-	4	2	5	-	-	1	2		2974	2
Fourth "	•		3	2			5_			17	3087	5
Annual ratio	•		21	5	24	3	11	3	5	72	3381	22
PLEURI	TIS.											
First quarter	-		1	19	8	2	8	2	4		3872	11
Second "	-	-	1	1 -	4	1	4	3	3		3591	4
Third "	-		-	-	11	6	-	1	-		2974	
Fourth "	-		_	1	10	2	1		4	18	3087	6
Annual ratio	-		2	20	33	11	13	6	11	96	3381	28
PHTHISIS PU	LMONA	LIS.										
First quarter	_	_ ` -	2	1	2	_	3	_	2	10	3872	3
Second "	-			_	5	1	2	_	-		3591	
Third "	-		-	1	2	1	-	1	-		2974	
Fourth "	-		V	1	2	-	2	-		5	3087	2
Annual ratio	-		4	3	11	2	7	1	2	30	3381	9
RHEUMA	TISM.											
First quarter			20	27	28		15	10	10	110	3872	28
Second "	-			12	7	1	_	11	6	57	3591	16
Third "	-		15	9	22		11	4	4		2974	22
Fourth "	-		12	12	24	5	1	10	8	72	3087	23
Annual ratio	-		60	60	81	8	34	35	28	306	3381	90

Compared with the last class, the following relations are found to obtain—In the former, the ratio of intermittent fever is nearly twice as high, whilst that of remittent fever is lower, being as 180 to 196. The annual average of diarrhea and dysentery is lower in the class now under investigation, owing, in a great measure, to the circumstance that the troops were generally removed to healthy summer encampments; and to the same cause may doubtless be ascribed the result exhibited in the third quarter, which gives a lower ratio than either the first or second.

The two classes of the southern division exhibit a low ratio of pulmonary diseases as a class. As most of the stations of the class now under investigation are on the Lower Mississippi, and are much under the influence of large bodies of water, the ratios are correspondingly low. With the exception of phthisis pulmonalis, the average of each disease exhibits the usual diversity in reference to the seasons. As respects the first and third quarters, the ratios of catarrhal affections stand as 92 to

26, pneumonia as 9 to 2, and pleuritis as 11 to 6.

As these posts, with the exception of the first two, are very much under the modifying influence of large bodies of water, the ratio of catarrh and influenza is correspondingly low. Baton Rouge, it is true, does not acknowledge this equalizing agency in so eminent a degree as the stations that follow. Compared with the last class, the ratios are consequently much lower; and, owing to similar causes, the class of posts between the Delaware and Savannah presents averages correspondingly low. In comparison with the mean ratios of the three classes of the northern division of the United States, it is found that the average of catarrh and influenza, in this class, is not quite half as high; whilst the mean ratio of pneumonia and pleuritis is about the same, and that of phthisis pulmonalis is a little higher.

The annexed table exhibits, according to the Adjutant General's

returns, the total of deaths in each month.

TABLE showing the number of deaths in each month.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Total of deaths in each month.		6	12	21	29	21	22	24	27	30	20	11	231

In this table, 29 deaths from epidemic cholera are included. So far as the quarters of the year are concerned, the number of deaths from this cause, that occurred in each, is as follows—In the first, 1; in the second, 11; in the third, 5; and in the fourth, 12.

#### SECOND CLASS.—EAST FLORIDA.

# FORT MARION.

LATITUDE 29° 50' N., LONGITUDE 81° 27' W.

This class of posts, which constitutes the last to be described, lies in a climate of a nature very distinct from any region yet under investiga-

The peculiar character of the climate consists less, as compared with more northern latitudes, in the mean annual temperature, than in the manner of its distribution throughout the year. Possessing an insular climate, the extremes of temperature are much modified. Although the winter at Fort Snelling is 47° 73' colder than at Tampa Bay, the summer, at the latter place, is only 8° 24' warmer. Although the mean annual temperature of Petite Coquille is nearly 2° lower, that of Augusta, Georgia, nearly 8°, and that of Fort Gibson upwards of 10° lower than at Tampa Bay, yet in all the mean summer temperature is higher. In the summer season, the mercury rises higher in every other portion of the United States, and even in Canada, than it does along the coast of Florida. In six years' observation at Key West, it was never known to rise above 90°. On reference to the tables given in the "Meteorological Register" these various relations, with many others,

may be traced out and clearly ascertained.

Fort Marion is in the city of St. Augustine, which is situated on the bay of the same name. It is distant about two miles from the ocean, and about half a mile from Anastasia Island, which divides the bay The St. Sebastian, a small stream, runs within half from the ocean. a mile of the town; and North river, which rises about 35 miles north of the city, empties into the ocean immediately opposite the fort. There are a few marshes in the vicinity, but they are inundated twice every 24 hours by the tides; and there are also some low hammock lands from two to six miles distant, from which, when the wind prevails from the southwest, clouds of musquitoes issue in the month of June, subject to be driven back as the wind changes. The site of the city is slightly elevated, being about twelve feet above the level of the ponds and marshes in the vicinity. The adjacent country is level and generally sandy, some parts being sufficiently rich in calcareous and vegetable matter to produce most of the vegetables cultivated at the north. Oranges flourish here most luxuriantly; but, in the early part of 1835, all the groves in the northern half of the peninsula were wholly destroyed by frost-an occurrence previously unknown.

St. Augustine has long been celebrated as a winter residence for pulmonary invalids; but the city itself has claims upon the traveller's attention, not the least being the fact that it is the oldest town in the United States. The fort is also one of the oldest in the United States. It was finished, as appears by its now nearly illegible inscription, in 1756, in the reign of Ferdinand the Sixth. The walls consist of a concretion of sea shells obtained from quarries on Anastasia island; and as the material, under a bombardment, crumbles away without suffering fractures, the fort duly manned would be almost impregnable. barracks and hospital are situated directly on the bay, about a mile south The position of these buildings is elegible in every respect.

The diseases reported within the ten years are comprised in the

following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Marion, for a period of ten years.

			321	10	5	١	•	32	ì	e.	6.5	•	12	_	00	19	,	13	177
		1838	,		,		•	•			•	•	•	•	'	•	,	•	
		1837	•		٠		•			•	•	•	,		•	•	,	,	
1	ER.	1836	,		٠	٠	٠	•			٠	•	•	•	٠	•	•	•	•
	ART	1835	,		•		•				•	•	'	•		•	•	•	•
	QU	1834	43	દર	•	•	•	ro	,	10	•	•	er:	•	က	4	•	<b>C3</b>	35
	SECOND QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	49	,	<b>C3</b>	•	•	Ξ	ì	1/	1	1	١	•	1	4	•	_	35
	SE(	1832	54	•	က	•	•	2		n	•	١	cs.	•	-	4	•	63	25
		1831	57	4	•	•		70	c	n _	1	•		•	c3	4	•	-	28
		1830	56		•	•	•	က	ļ	cT .	1	•	1	٠	1	1	•	က	24
		1829	62	4	•	•	•	က		מ	<b>C3</b>	•	2	_	65	63	•	4	3.5
			305	4	•	<b>C3</b>	-	44	9	7	က	•	12	9	13	25	•	*14	145
		1838		•	•	•	1	•		•	•	•	'	1	•	•	•	,	•
		1837	•		•	•	•	•		•	•	'	,	,	•	•	•	•	•
	R.	1836	•		•	•	•	•		•	ı	•	•		ı	•	٠	,	•
	FIRST QUARTER.	1829 1830 1831 1832 1833 1834 1835 1836 1837 1838	•	1	•	•	•	•		,	•	•	•	•	•	•	•	•	
	QUA	1834	42		•	63	,	co		83	•	•	_	•	<b>€</b> 3	_	•	က	14
	RST	1833	48		•	•	•	}-		o	•	•	c2	C3	C3	9	•	લ્ર	26
	F	1832	58	25	•	٠	•	20	ç	2	,	•	4	_	4	9	•	က	20
		1831	54		٠	•	_	4		•	જ	•	<b>C3</b>	_	-	9	•	<b>C</b> \$	19
		1830	58	23	•	•	•	4		23	٠	•	જ	_	-	C3	•	_	15
		1829	45		•	•	•	9		,	-	•	_	-	63	4		က	21
		٠	'	'	•	•	•	ato-	stive	and	•	•	•	•	•	•	•	•	•
		•	•	- 10/		•	•	respin	dige	brain	- ma	٠	ctions	ions	sesses	njuries	•	scs -	
		•	ength	int fev	t fever	fever	ever	of the	of the	of the	s syste		ic affe	affect	d absc	and ir	•	diseas	•
		rs -	Mean Strength	Intermittent fever -	Remittent fever	Synochal fever	Typhus fever	Diseases of the respiratory organs -	Diseases of the digestive	organs - Diseases of the brain and	nervous system -	Dropsies	Rheumatic affections	Venereal affections	Ulcers and abseesses	Wounds and injuries	Ebriety	All other diseases -	Total
		Years	Mea	Inte	Ren	Syn	Typ	Disc	Disc	Disc	ā	Dro	Rhe	Ven	Ole	Wo	Ebr	All	

		206	21	က		,	19	35		p==4	5	9	14	17	1	14	114
•	1838			,	•	•		٠	•	•	•	•	,		•		<u> </u>
	1837				•	•				٠	•		•	•	•		<u> </u>
ER.	1836			•	•	1	•			•		•	•	•	•	•	<del> </del>
ART	1835		,		•	٠	•	•	1	•	•	•	•	•	•	•	-
ı qu	1834	•			1		•	•	1	'	•	•	•	•	•	•	<u> </u>
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4	,	rength -	nt fe			33	Diseases of the respiratory organs  Diseases of the digestive	Organs Diseases of the basis and	nervous system -	• ;	ic affe	" " I	Ulcers and abseesses	Wounds and injuries		All other diseases -	Total
	Years -	Mean Strength	Intermitt	Kemittent	Synochal	Typhus	Diseases o organs Diseases	Organs	nervou	Dropsies	Kheumat	Venereal	Ulcers an	M ounds	Ebriety	All other	TC

Under the class of diseases of the respiratory organs are comprised 86 catarrh, 14 pneumonia, 8 pleuritis, and 9 pltthisis pulmonalis; under the head of digestive organs, 92 diarrhæa and dysentery and 65 cholic and cholera; under the class of brain and nervous system, 1 epilepsy and 2 mania a potu; and under that of venereal affections, 22 gonorrhæa and 2 syphilis.

The above abstract includes no returns later than 1835, as this post became, after that period, a general hospital for the troops in the field. As the total of deaths, according to the Adjutant General's returns, is 9, and the aggregate mean strength is 350, the annual ratio of mortality for seven years is  $2\frac{7}{10}$  per cent. Of the deaths, 8 are reported in the medical returns, viz. 1 remittent fever, 2 convulsions from intemper-

ance, and 5 from causes not specified.

This post has been at all times justly esteemed for its salubrity. Compared with the average mortality of southern posts in general, this station is found to exhibit a much lower ratio. The annual average of fevers of malarial origin is very low, that of intermitting fever being 20, and that of remitting fever 11, per cent. It is seldom that diseases of a malignant character appear at St. Augustine. Towards the close of the present year, (1839,) yellow fever, which ravaged the principal cities of our southern States, made its appearance at this station. This is only the second time that this epidemic has prevailed in this city within the period of 20 years, whilst at Charleston, we are told by Professor Dickson, that in 24 years' practice, but three have passed without his knowing the occurrence of yellow fever. The period at which it prevailed first at St. Augustine was immediately after the cession of the province by Spain. As much filth had been allowed to accumulate during a succession of years, both at this place and at Pensacola, the circumstances incident to its removal by the American authorities were regarded as the exciting cause of the disease by the medical officers of The experience of a century and a half teaches us that the causes of yellow fever are perennially present in our southern cities. Indissolubly connected with our soil and climate, it maintains the same relation towards the animal economy, as the malaria of our immense low country. As regards the essential cause of yellow fever, we still remain in the dark. It is manifest, however, that to develope the cause, and to keep up its action, requires a high range of atmospheric temperature; and as this condition seldom obtains on the coast of Florida, it would seem to afford an apparent explanation of its infrequent occurrence in this region. As the extremes of temperature are much modified by geographical position, and as the combined influence of the various causes acting in the most intense degree appears necessary for its development, a link in the chain seems to be wanting. At Key West, as in the islands generally of the West Indies, yellow fever has prevailed with much malignity.

The relative influence of the seasons in the production of disease in

general is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
6 first quarters - 6 second " - 7 third " - 4 fourth " -	305 321 379 206	145 177 232 114	475 551 612 553
Annual ratio -	304	668	2,197

Hence every man, on an average, has been reported sick once in every five and a half months.

### FORT KING.

## LATITUDE 29° 12' N., LONGITUDE 82° 12' W.

'The following extracts, in regard to the medical topography of Fort King, are taken from a paper transmitted to the Surgeon General's office,

in 1837, by Assistant Surgeon Forry.

"As regards geographical position, this station is about 95 miles N. E. of the head of Tampa Bay, 130 S. W. of St. Augustine, perhaps 40 miles due west from the Gulf of Mexico, and 60 due exst from the Atlantic ocean. The fort, which has been recently rebuilt, is situated on rising ground, partially encompassed by a hammock, which describes almost a semicircle, at an average distance of 500 yards from the pickets. The surface of the surrounding country is slightly undulating. soil of the so-called pine barren consists of loose sand and a light admixture of vegetable mould, with an argillaceous substratum. Its principal vegetable productions are, the pitch pine, (pinus vigida,) black jack, (quercus nigra,) scrub oak, (quercus catesbaei,) palmetto, (chamærops,) and coarse herbaceous plants. The hammocks are rich marshy bottoms, composed of vegetable deposition, overgrown with redundant vegetation. Here flourish the live oak, with other species of the same genus, the cypress, magnolia, cabbage-tree, and several varieties of hickory, (carya,) all united by a cordage of vines and brambles, extending from trunk to trunk and from limb to limb, constituting an immense net-work of vegetation.

"My observations on vegetation have been limited. The dew-berry, or creeping blackberry, rubus trivialis, I discovered ripe in the Wahoo swamp, near Dade's battle-ground, in the middle of April. On our arrival at this post, on the 28th April, the dandelion, leontodon taraxicum, had already bloomed, and the magnolia grandiflora was just expanding its blossoms. The chenopodium anthelminticum, found here in the greatest abundance, is now (August 1st) just putting forth its organs of fructification. The Spanish moss, (tillandsia usneoides,)

W P.

which is produced very exuberantly, I discovered in every stage of existence in the month of June. My attention was first attracted by the manifest state of its organs, the stamens and pistils being half an inch long. The seed of this parasite has an egret more than six lines in length, consisting of a bundle of simple hairs without branches.

The mineral productions of this region seem to be all of secondary formation. These stratified rocks contain organic remains, both animal and vegetable. They consist chiefly of carbonate of lime, and in some

the most delicate structure of shells is preserved.

"No large bodies of water exist in the vicinity of this post. Three miles from this point is Silver spring, the source of a beautiful stream of the same name. From this fountain, remarkable for its transparency, Silver creek emerges at once a bold stream, 60 yards wide and 20 feet deep, running into the Ocklewaha about 12 miles from this post. A remarkable peculiarity is often found in regard to the course of waters; considerable streams sometimes disappear, and, after running several miles subterraneously, again emerge. Near Dade's battle-ground is a small lake, into which a rapid creek empties, but no outlet is visible. These waters are generally well stored with the finny tribe, whilst the forest abounds in every kind of game pertaining to the country.\*

"Although large bodies of water do not exist in the vicinity, yet the actual quantity is very great, owing to the extensive marshy low lands, swamps, and stagnant pools; and as the soil is not completely covered with water, the circumstances most conducive to the evolution of those morbific agents resulting from solar influence obtain. The humidity of the vicinal hammocks gives rise to constant exhalations, which fall in heavy dews; and perhaps to this cause is to be ascribed, in some meas-

ure, the prevalence of intermitting fever.

"This post, which had been for some years the Seminole agency, has always maintained the character of being a healthy station. A striking advantage over most other localities in Florida is, the existence of a never-failing spring of excellent water."

The diseases reported within the ten years are comprised in the

following abstract—

<sup>\*</sup> Since the date of this report, a singular phenomenon occurred at the post of Micanopy. The waters of Lake Tuskawilla, perhaps a mile in length, suddenly disappeared subterraneously, leaving its inhabitants upon dry land. Orange lake is running off in a similar manner, about ten thousand acres having been completely drained.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort King, for a period of ten years.

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Under the class of diseases of the respiratory organs are comprised 47 catarrh, 8 pneumonia, 4 pleuritis, and 4 phthisis pulmonalis; under the head of digestive organs, 117 diarrhæa and dysentery, 21 cholic and cholera, and 5 hepatitis; and under that of venereal affections, 4

gonorrhea, and 1 syphilis.

This post was evacuated July 3d, 1829, and re-occupied July, 1832; abandoned in May, 1836, and re-established in April, 1837. As in the preceding station, no reports are included in the above abstract since the commencement of the present Indian disturbances. As the total of deaths, according to the post returns, is 14, and the aggregate mean strength is 420, the annual ratio of mortality is  $3^{+}_{10}$  per cent. Of the deaths, 7 are reported in the medical returns, viz. 2 remittent fever, 1 phthisis pulmonalis, 1 phrenitis, and 3 from causes not designated, being at the rate of  $1^{+}_{10}$  per cent. In the post returns, 10 deaths are reported in 1835, whilst but 3 are given in the sick reports, excluding the death of Lieut. Smith, who, with Gen. Wiley Thompson, the Indian agent, was massacred by a party of Seminoles. Assuming eight deaths as the total from all causes, with the exception of casualties, the annual ratio of mortality is nearly 2 per cent.

The annual average of fevers of malarial origin is high, that of intermitting fever being 123, and that of remitting fever 20, per cent.; but the ratio is very much reduced, if the year 1835 is excluded, the former being 38, and the latter 19, per cent. This post, however, has always been regarded as decidedly salubrious, with the exception of the liability to fever and ague. Violent fevers of the remittent form, and intermittents running into the same type, occurred in the latter part of the summer of 1837, owing doubtless to the circumstance that the smaller trees and undergrowth of a neighboring hammock had been cut down as a precaution against Indian ambuscade. It is a well known fact that military stations, near jungles, often continue healthy until the soil is brought under cultivation, or the trees and shrubbery cut down, expos-

ing the boggy surface to the agency of solar action.

The following remarks are from the report of Assistant Surgeon Forry— "Fevers generally assume the intermittent form. They are mostly of the tertian type, sometimes the quotidian, and very rarely the quortan or quintan. After the employment of mercurial cathartics, emetics, and blood-letting, according to the indications presented, the disease speedily and invariably yields to the use of sulph: quinine. It is seldom, however, that venesection is required. When not contra-indicated by diarrhæa, I always use the solution of quinine saturated with the sulph: magnesiæ. According to my experience, it not only adds much efficacy to the remedy, but its employment is admissible when slight febrile symptoms still contra-indicate the usual preparations of quinine. The happy effects of this prescription have been displayed also in cases that have assumed a chronic character, attended by visceral indurations and enlargements. In several neglected cases among the friendly Creeks, the continued use of this preparation alone speedily arrested the paroxysms, removed the icterode hue of the skin, and reduced the liver and spleen to their normal condition.

"Several cases of scorbutus have been presented. The disease manifests itself with most of the symptoms by which it is generally described. Muscular power is completely prostrated, the gums are swollen, spongy, and livid, the legs are anasarcous and covered with blotches of extravasated blood, and the nates sometimes, but very rarely, become the seat of bloody abscesses. These lesions gradually yield to the plentiful use of lemon acid and vegetables with vinegar. The only therapeutic means employed in conjunction is, the sulph: quinine dissolved in elixir vitriol. When stationed at Fort Armstrong, several cases of this disease occurred. Deprived of vegetables, they grew worse from day to day, until the free use of wild pepper-grass, (lepidium virginicum,) found in a neighboring swamp, was prescribed. At this post, we have the good fortune to find in great abundance purslane, renowned among the older physicians as an anti-scorbutic."

The comparative agency of the seasons in the causation of disease in

general is shown in the annexed table—

TABLE exhibiting the ratio of sickness.

				D. J. J. Co.
Seasons.		Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
4 first quarters	_	345	171	, 496
4 second "	-	413	244	591
3 third "	-	445	347	780
4 fourth "	-1	427	388	909
Annual ratio		408	1,150	2,819

Consequently every man, on an average, has been reported sick once in every four and a quarter months.

#### FORT BROOKE.

# LATITUDE 27° 57' N., LONGITUDE 82° 35' W.

This post is situated at the head of Hillsboro' Bay, which is an arm of Espiritu Santo,\* about 30 miles from the Gulf of Mexico. The Hillsboro' river empties into the bay at this point. The general aspect of the surrounding country is low and level. This post has always been regarded as a delightful station. Here tropical fruits, such as the lime, the orange, and the fig, find a genial soil. Vegetation, as already remarked, may be regarded as continuous throughout the year, wild flowers blooming, and culinary vegetables growing, in the month of January; and, at the same season, the water of the bay is generally of a temperature to admit of bathing.

The diseases reported within the ten years are comprised in the sub-

joined abstract—

<sup>\*</sup> The whole bay is now generally known by the name of Tampa.

ABSTRACT exhibiting a condensed view of the principal diseases at Fort Brooke, for a period of ten years.

				FI	RST	FIRST QUARTER.	TER							SO	ECO]	SECOND QUARTER.	UAR	rer.			
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Ulcers and abscesses	10	11	1	-	•	•	10		1	<del>ر</del> ى	က	-	m	3	8		•	•			19
Wounds and injuries	<u>ი</u>	24	10	12	•	•	17		•	-	72		13	7 23	CTD	-	'	•	•	٠	73
Ebriety	1	က	•	19	'		9	,	-	GE .	co	,	-	7			-	'	'	1	23
All other diseases -	က္	6	ಣ	11	•	•	18		•		4			10   11	9	<u>'</u>	'	• •	٠	٠	200
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ABSTRACT-Continued.

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Under the class of diseases of the respiratory organs are comprised 154 catarrh, 9 pneumonia, 28 pleuritis, and 1 phthisis pulmonalis; under the head of digestive organs, 364 diarrhæa and dysentery, 86 cholic and cholera, and 3 hepatitis; under the class of brain and nervous system, 4 epilepsy and 1 mania a potu; and under that of venereal affections,

9 gonorrhæa and 2 syphilis.

As a general hospital was established at this post as soon as the Seminole war began, no reports subsequent to the year 1835 are embraced in these statistics. As the total of deaths, according to the Adjutant General's returns, is 15, and the aggregate mean strength is 651, the annual ratio of mortality is  $2\frac{1}{10}$  per cent. Of the deaths, 12 are reported in the medical returns, viz. 3 remittent fever, 1 continued fever, 1 intermittent fever, (in the cold stage of a quarta) 1 cynanche trachealis, 1 meningitis, 1 acute hepatitis, 1 chronic diarrhæa, 1 atrophia, 1 drowned, and one from no specified cause. Excluding the case of asphyxia, the

ratio, according to the medical returns, is  $1\frac{8}{10}$  per cent.

Like the two preceding posts, this one has always been regarded as highly salubrious. The ratio of mortality is equally low. As regards fevers of malarious origin, the annual average of intermitting fever is 73, and that of remitting fever is 9, per cent. The high ratio of intermittent fever, both at this post and the preceding one, is owing in some measure to the exposure incident to detached service. The following extract is taken from the report for the third quarter of 1835, made by Assistant Surgeon H. L. Heiskell—"By a reference to the diary of the weather, it will be perceived that there were 57 days' rain during the quarter. The unusually wet season was doubtless a most prolific source of disease; to which may be added the exposed condition of a number of the men on detached duty. Of the three who died, one sickened of bilious remittent fever at a temporary post about 60 miles south, where he remained a number of days before he could be brought to this place; the second died of effusion upon the brain, produced by exposure on a distant boating expedition as an oarsman; and the third died of emaci-The prevailing disease (intermitting fever) is irregular in its form, and assumes various protean characters. Sometimes the fever is preceded by a regular ague; at other times, by a slight chill; but oftener by none at all. One had the masked form of the disease, as described by Senac, attacking the eyes, only, with regular periodical pains; and in another case, the force of the disease was spent upon the arm and shoulder. Both were cured by quinine."

The following table exhibits the relative influence of the seasons in

the production of disease in general—

an

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
5 first quarters - 4 second " - 4 third " - 4 fourth " - Annual ratio -	746 453 578 608	542 435 560 474 2,011	726 960 969 780 3,374

Every man, on an average, has consequently been reported sick once in every four months and a half.

### KEY WEST.

## LATITUDE 24° 33' N., LONGITUDE 81° 52' W.

Key West, or Thompson's Island, lies about 60 miles southwest of Cape Sable. It is about ten miles long, and from one to three in breadth. Low and level as regards its general surface, the southeastern shore presents the most elevated point. This ridge, consisting chiefly of sand and shells thrown up by the sea, rises about five feet above high water-mark. In the interior of the island are found many marshes and lagoons, some of which are lower than the surface of the surrounding These marshy low lands, covered in some parts with fresh, and in others with salt water, doubtless constitute a prolific source of mias-Another important feature in the medical topography of this island is the occasional appearance upon the beach of an immense quantity of marine substances, both animal and vegetable. The mass thus accumulated, during the prevalence of a south or southwesterly wind, lies in some places to the depth of several feet, and extends several miles along the shore. Although these decomposing materials emit in a few hours effluvia of the most offensive character, yet their agency in the production of disease is a question admitting of disputation.

This island is the most southern settlement of the United States. It contains about 1,400 inhabitants, and is a place of some commerce, chiefly in the way of wrecked goods. Having a good harbor, it has been from time to time the station of our West India squadron.

The mean annual quantity of rain, on an average of five years, is 31.39 inches.

The diseases reported within the ten years are comprised in the following abstract—

ABSTRACT exhibiting a condensed view of the principal diseases at Key West, for a period of ten years.

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	Years -	Mean Strength	Intermittent fever -	Remittent fever	Synochal fever	phus	Diseases of the respiratory organs	Diseases of the digestive organs	Diseases of the brain and nervous system -	Dropsies	Rheumatic affections	Venereal affections	Ulcers and abscesses	Wounds and injuries	Ebriety	All other diseases -	Ţ
	Ye	Me	Int	Rei	30 V	TV	`Ā ¯	ä	Ä	Dr	Rh	Ve	Ď	×	Eb	Al	

Under the class of diseases of the respiratory organs are comprised 41 catarrh, 3 pneumonia, 11 pleuritis, and 3 phthisis pulmonalis; under the head of digestive organs, 112 diarrhæa and dysentery, 22 cholic and cholera, and 27 hepatitis; under the class of brain and nervous system, 1 epilepsy and 11 delirium tremens; and under that of venereal affections, 2 gonorrhæa.

As the total of deaths, according to the Adjutant General's returns, is 24, and the aggregate mean strength is 268, the annual ratio of mortality is nearly 9 per cent. Of the deaths, 20 are reported in the medical returns, viz. 5 inflammatory fever, 2 phthisis pulmonalis, 2 hydrothorax, 1 chronic hepatitis, 1 casualty, 1 ebriety, and 8 from causes not designate the contract of th

nated, being at the rate of  $9\frac{6}{10}$  per cent.

The mortality of this station is extraordinarily high. In April, 1833, the garrison, in consequence of sickness, evacuated the post temporarily, and occupied Fort Clinch. The quarterly sick-reports are not sufficiently full in details to be enabled to determine the precise character of the prevailing diseases. Of the 20 deaths, the causes of 8 are not specified; and the 5 fatal febrile cases, in the third quarter of 1835, are ascribed to the "fever of the climate," whilst the 16 cases which occurred are registered under the head of inflammatory fever. Fevers of malarial origin present a very low ratio, the average of intermitting fever being 20 per cent., and that of remitting fever less than 2 per cent. The cases of phthisis pulmonalis occurred in old drunkards; and to the agency of inebriation, combined with the influence of the summer season upon northern constitutions, the mortality is doubtless chiefly attributable.

Yellow fever prevailed among the naval forces stationed at this island in 1824. The epidemic is well described by Dr. Benjamin Ticknor, of the United States Navy. Independently of the operation of local causes, reference is made to excessive fatigue, unwholesome food, and the intemperate use of ardent spirits. The sailors drank not only to gratify the appetite, but to guard against an attack of fever. Agreeably to a regulation of the naval service, every man received a daily allowance of half a pint of rum or whiskey; but this quantity served only to whet the appetite, and to excite the well-known ingenuity of the soldier and the sailor in its obtainment. The effects of this excessive potation were rendered more pernicious in consequence of atmospheric vicissitudes; for the men, when in a state of high excitement, with the perspiration streaming from every pore, would throw themselves upon the floor or ground, and, falling asleep, lie thus exposed to the damp night air.

The relative agency of the seasons in the causation of disease in

general is shown in the following table—

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength treated quarterly.
5 first quarters	271	318	1,173
4 second " -	231	227	939
3 third " -	166	260	1,566
3 fourth " -	164	197	1,201
Annual ratio -	208	1,002	4,817

Hence every man, on an average, has been reported sick once in every two months and a half—a ratio exceedingly high.

### TEMPORARY POSTS.

We come now, in conclusion, to the consideration of the posts temporarily established in various parts of the present theatre of military operations. The results, based upon the statistics of 31 stations, are confined to a single year, inasmuch as an exact separation previously

between the regulars and volunteers is impracticable.

The topographical descriptions of the posts of this class, already given, afford some idea of the general features of this region, which consists of a succession of marshes, savannahs, and sandy pine forests. The soil of this coast is frequently of a deep alluvial character, and of comparatively recent formation. As the rivers annually bring down immense quantities of deposite, the land gains so rapidly upon the ocean that its waters have, as for instance at the mouth of the Mississippi, receded three or four miles within a century. Owing to this peculiarity in its formation, the country is a vast flat, with an occasional elevation produced by a sand-reef, covered with rank and tall grass, or with dense Little elevated above the level of the sea, the southern portion of the peninsula presents, with the exception of a belt along the coast, an endless succession of swamps and marshes, called "everglades." The dry "sand barren," covered with a forest of pines, forms much the greater part of the northern portion. A rich soil for cultivation is found along the coast, on the banks of rivers, or in those dense jungles, called hammocks, which seem to have been once lakes. The pine barrens are composed principally of silicious sand, more or less mixed with calcareous and vegetable matter. The swamps on the borders of rivers seem to be formed by inundation. Immediately after leaving the channel, the grosser part of the alluvial matter is deposited, forming a ridge; and this embankment, as the water subsides, prevents its complete The whole country being a dead level, the superabundant moisture remains until evaporated by the sun's rays; and the winds, traversing the grounds thus saturated, it is supposed, possess considerable agency in the causation of fevers.

The following abstract comprises the diseases reported in one year, at 31 posts, and among troops on the march—

ABSTRACT of diseases reported in one year at thirty-one posts, and among troops on the march.

	4th q	ır. 1838.	1st o		2d q	r. 1839.	3d q	r. 1839.	ν	Vho	ole year.
Strength	3	,016.	3,46	57.	3	,280.	2	,606.		3,	092.
Diseascs.	Treated.	Died.	Treated.	Died.	Treated.	Died.	Treated.	Died.	Treated.	Died.	Proportion of deaths to numb'r treated.
Intermittent fever - Remittent " - Synochal " - Typhus " - Diseases of the respi-	303 59 4 -	1 8 - -	142 31 - -		304 59 3	- 4 - -	607 151 4	1 8 - -	1356 300 11		1 in 678 1 in 15 0 in 11 0 in 0
ratory organs - Diseases of the di- gestive organs - Diseases of the brain	103 492	1 17	171 517		76 626	2	116 464	7	466 2099		1 in 67 1 in 58
and nervous system Rheumatic affections Venereal "	30 69 45	2	39 137 18	1 -	37 60 15	2 -	40 74 16	1 - -	146 340 94		1 in 24 0 in 340 0 in 94
Scorbutic " Dropsical " Ulcers and abscesses	6 4 81	-	1 3 85	1 1 -	25 3 49	1 1 -	28 4 105	1 - -	60 14 320	3 2 -	1 in 20 1 in 7 0 in 320
Wounds and injuries All other diseases -  Total	145 143 1484	29	$\frac{192}{106}$ $\frac{1442}{1442}$	- - 14	$   \begin{array}{r}     160 \\     204 \\     \hline     1621   \end{array} $	- - 14	$     \begin{array}{r}       148 \\       206 \\       \hline       1963     \end{array} $	7 - 26	645 659 6510	7 - 83	1 in 92 0 in 659 1 in 78
Ratio per 1,000 -	492	9 6-10	416	4	491	4 3-10	753	8 8-10	2105	27	

Under the class of diseases of the respiratory organs are comprised 330 catarrh, 3 acute bronchitis, 34 pneumonia, 62 pleuritis, 23 phthisis pulmonalis, 4 homoptysis, and 6 asthma; under the head of digestive organs, 1,594 diarrhea and dysentery, 113 cholic and cholera, and 22 hepatitis; under the class of brain and nervous system, 49 nyctalopia, 6 apoplexy, 12 epilepsy, and 15 mania a potu; and under that of venereal

affections, 51 gonorrhea, and 43 syphilis.

The 83 deaths are reported from the following causes, viz. 20 remittent fever, 2 intermittent fever, 1 pleuritis, 6 phthisis pulmonalis, 15 dysentery, 16 chronic diarrhea, 5 gastro-enteritis, 2 apoplexy, 1 epilepsy, 1 phrenitis, 2 mania a potu, 3 scorbutus, 2 dropsy, 5 gun-shot wounds, and 2 casualties. The ratio of mortality is consequently  $2\frac{7}{10}$  per cent.; but inasmuch as 7 deaths arose from wounds and injuries, and 1 from yellow fever contracted at Savannah, the total of deaths is reduced to 75, and the average mortality to 2,4 per cent.

39

It thus appears that the mortality, during a period of Indian hostilities, when the troops occupy a number of posts which dot the whole surface of the Peninsula, is, like the ratio prior to the war, remarkably low. It is seen, too, that a large proportion of the deaths arose from that class of diseases of a chronic character, to which soldiers of intemperate habits are peculiarly liable-29 fatal cases of phthisis pulmonalis, chronic diarrhea, mania a potu, and dropsical and scorbutic affections being reported. As regards fevers of malarial origin, the annual average of intermittents is 44, and that of remittents is 10, per cent. In the latter, the ratio of fatal cases is 1 in 15. On comparing the second and third quarters, a singular relation between intermittent fever and the class of diseases of the digestive organs is perceived. In the former, the ratio of intermittent fever is 9, and that of the diseases of the digestive organs is 23, per cent.; and in the third quarter, the ratio of the former is 19, whilst that of the latter is only 17, per cent. As the average of the former is more than doubled in the third quarter, whilst that of the latter is decreased, it would seem, assuming an identity of cause, that the same morbific agents operating in a less intense degree produce, as in the second quarter, diseases of the digestive organs, and when more concentrated in their action, as in the third quarter, intermittent fever.\*

It appears that intermittent and remittent fevers are both more frequent and fatal in that portion of Florida bordering on Georgia. Positions along the coast, and in many parts of the interior of the Peninsula, are often found very salubrious. Along the eastern coast, there are several posts at which a case of fever has not been reported in one, and even two quarters. Other localities again, many being selected less with reference to salubrity than military advantages, have proven very unhealthy. Fort Roger Jones, for example, established on the Oscilla river in Middle Florida, in March, 1839, by one company of Infantry, (42 men,) became so sickly that it was necessary to abandon it on the 13th June. The sickness commenced towards the end of May, and continued progressively to increase, not only numerically but in severity. All the fatal cases were confined to the commissioned officers, Captain Mitchell and Lieut. Pew having died at the post, and Surgeon Richard

Clark on the sixteenth day after its abandonment.

"In Captain Mitchell's cases," says Assistant Surgeon McCormick, "the tertian type was plain and evident. On the 7th day, he was doing so well that I thought him free from danger, inasmuch as on that day he missed his regular paroxysm of fever, his mouth began to show evidence of mercurial impression, and the dejections from his bowels were dark and of a tarry consistence. I favored the evacuation by a dose of ol: ricini, which brought away free discharges of this vitiated bile; but, notwithstanding I pursued the active treatment adopted in the commencement of his disease, he was seized towards noon of the day following, viz., the eighth, with a chill, which lasted a considerable time, followed by fever and a remission on the following morning. As the mercurial impression, however, entirely disappeared, and the dejections from the

<sup>•</sup> The disposition in intermittents to observe septenary periods has been frequently remarked by medical officers in Florida.

bowels lost their favorable appearance, I began to fear that the disease was taking a very unfavorable turn. I therefore desired Surgeon Richard Clark in consultation; and as there was at our post a civil surgeon in the employment of Government, I concluded to ride over myself, and have some conversation with Dr. Clark on returning with him to Fort Roger Jones. Having got there in the evening, I found that Capt. M. had had a repetition of the chill, and although recourse was had to the most active remedies, we could scarcely produce any reaction. On the day following, he was seized with another chill, and no remedies we could use, although we applied the most powerful external stimulants, and continued the administration of the caloinel in large doses every two hours, and by the advice of Surgeon Clark resorted to powerful internal stimulants, such as carb: ammoniæ, wine and brandy, were of any avail in overcoming the great congestion which had taken place, and which finally proved fatal."

Assistant Surgeon McCormick himself labored under an irregular form of intermittent fever, and on the day following the abandonment of Fort Roger Jones, Surgeon Clark was seized with a violent head-ache, a constant disposition to emesis, and a sense of great anxiety about the præcordia. After an illness of fifteen days, during which period constant efforts were unavailingly made to induce ptyalism, Surgeon Clark died at Welaunee, the residence of Col. Robert Gamble. These details are given to show with what concentrated virulence of action the effects of that mysterious agent termed malaria are sometimes manifested.

Under the class of diseases of the brain and nervous system are reported 49 cases of nyctalopia, hameralopia, or paropsis noctifuga, an affection of very unusual occurrence in other parts of the United States. application of these learned terms much confusion exists among authors, hæmeralopia and nyctalopia being used to express both night-blindness and day-blindness. The affections here reported are all, it is believed, cases of night-blindness; and as Hippocrates applied the term hæmeralopia to this form of the disease, it may be well to follow his example. As the cause of hæmeralopia seems to consist in an exhaustion of the power of the retina in consequence of exposure to strong light during the day, the disease is rarely met with except in intertropical climates, or those regions in which the ground is covered many months with snow. In the West Indies Europeans, more especially soldiers and sailors, suffer much from this affection. The same causes operating here are found to obtain in Florida, such as the full glare of a vertical sun in an unclouded sky, and the reflection of solar rays from the surface of water or a sandy soil. In Florida, its duration varies from one night to six or twelve months, whilst relapses are frequent. The treatment usually adopted consists in the use of cathartics, and the application of cups and blisters to the temples and the nape of the neck; but these remedies, as well as salivation, prove in many cases wholly unavailing.

The following table exhibits the relative influence of the seasons in

the production of disease in general-

TABLE exhibiting the ratio of sickness.

Seasons.	Mean strength.	Number treated.	Ratio per 1,000 of mean strength, treated quarterly.
l first quarter -	3,467	1,442	330
1 second " -	3,280	1,621	491
1 third " -	2,606	1,963	753
1 fourth " -	3,016	1,484 .	492
Annual ratio -	3,092	6,510	2,105

Consequently every man, on an average, has been reported sick once

in every five months and a half.

It will be seen, according to the regimental returns, that there has been a progressive decrease each year in the mortality arising from all causes—"ordinary, killed in action, died of wounds, and accidental." In 1836 it was  $11\frac{4}{10}$ , in 1837  $6\frac{9}{10}$ , in 1838  $4\frac{7}{10}$ , and in 1839  $4\frac{7}{10}$  per cent., the average for the four years being  $6\frac{1}{10}$  per cent. In the summer of 1836, the troops remaining in the Territory being chiefly concentrated on the frontier settlements, suffered much from disease. On the Suwanee river, the 4th Infantry experienced a high mortality. The following remarks from the report of Assistant Surgeon A. F. Suter, for the last quarter of 1836, at Fort Clinch, on the Withlacoochee, to which point the troops at Suwanee Old Town had removed on the 10th of November, will illustrate the general character of morbid action:

"It may not be inapplicable to this report to give a slight sketch of the fevers treated at Suwanee Old Town, during the past and early part In the month of July, the prevailing diseases were inof the quarter. termittents, remittents, and continued fevers and diarrhea, mild in their general character, and yielding readily to the usual remedies. Towards the first of August the sickness of the post began to increase rapidly, the diseases being principally intermittent, remittent, cont., and yellow fever of a most malignant and congestive type, which, as the season advanced into September, became more violent and fatal. As regards their general course, they usually commenced as an intermittent, running immediately into a remittent or yellow fever, or terminating fatally in the second or third paroxysm in a state of congestion, although the previous exacerbations may have been very slight. The plan of treatment pursued and found most successful consisted in the administration of the sub: mur: hydrarg: in doses of xxv. or xxx. grains, followed in four or six hours by castor oil, if the calomel did not operate sufficiently. The sub: mur: hydrarg: was then continued in smaller doses, combined with the sulph: quina, every hour or two, to prevent a return of the paroxysm, and change the character of the discharges which were dark and fætid. these indications were not fulfilled before the return of the next paroxysm, and if the patient, in the cold stage, fell into a state of congestion, which was most usually the case if the disease had not been arrested, recourse

was then had to the most potent stimulants and tonics. Sinapisms were applied to the feet, calves of the legs, inside of the thighs, epigastrium, arms, wrists, and frequently to the chest and spine; and in some cases cups to the abdomen, followed by a blister dressed afterwards by ungt: hydrarg: fort. Internally were given wine, brandy, carb: ammoniæ, camphor, opium, serpentaria, and sulph: quiniæ. Enemata of infus: sem: lini: and tr: opii, were administered and frequently repeated to check the discharges from the bowels, which, by this time, invariably became frequent, involuntary, profuse, and watery, speedily reducing the patient to the most extreme state of debility compatible with life. The pulse became scarcely perceptible, the surface of the skin shrunken and overspread with a peculiar and fœtid perspiration exuded from every pore, the extremities cold, and the countenance of a leaden line. If reaction could not be induced, all the symptoms increased, the abdomen became tympanitic, the breathing difficult, and finally a violent convulsion terminated life. On the 10th November, 1836, the command left the Suwanee for Fort Clinch. From that period to the end of the quarter the principal cases treated were scurvy and cachexia, among those brought from the Suwanee. All the deaths occurred among these, their constitutions being entirely destroyed by repeated attacks of fever."

The 22 deaths reported this quarter are from the following causes: continued fever, 1; remittent, 1; congestive, 3; malignant intermittent, 1; and typhus fever, 1; dysentery, 3; chronic diarrhœa, 2; pneumonia, 1; hydrothorax, 2; dropsy, 1; apoplexy, 1; epilepsy, 1; and

cachexy and scurvy, 4.

Along the frontiers of Florida, as in our Southern States generally, may be seen deplorable examples of the physical, and perhaps moral, abjection, induced by marsh miasmata. In earliest infancy, the complexion becomes sallow, and the eye assumes a bilious tint. Advancing towards the years of maturity, the growth is arrested, the limbs become attenuated, and the viscera engorged. Boys of 15 years may be seen bowed down with premature old age—a mere vegetating being, with an obstructed, bloated, and dropsical system, subject to periodical fevers, passive hæmorrhages, and those other forms of disease which follow in the train of malaria.

Many localities consequently proved very unhealthy. Whilst some fell under the direct influence of disease, others brought away its germ. Not a few persons, who had maintained uninterrupted health in Florida, took sick upon returning north. It is, indeed, a remarkable fact in the medical history of fleets and armies, that, during the active progress of warlike operations, troops are little subject to the influence of disease. It seems as though the excitement of the passions has the power of steeling the system against the agency of morbific causes. On the contrary, as soon as the excitement is withdrawn, by a cessation of operations, and a return to the monotony of a garrison, the constitution manifests the consequences of recent fatigue and exposure.

A general opinion obtains that, to preserve health in localities subject to malaria, full living and a liberal allowance of wine are requisite. This opinion, so far as Florida is concerned, is founded in error. Irregu-

larities in diet and drink, more especially when the person has been unduly exposed to the direct influence of the sun, are found to be among the most frequent exciting causes of fever. It is a truth that holds good in every clime that, in proportion to the healthy state of the digestive organs, is the constitution enabled to resist the causes of disease, or to pass through it safely when under its influence. A plain and moderate diet is always most conducive to the preservation of health; and it is unreasonable to suppose that a regimen, leading to a deranged state of the digestive functions, can fortify the system against the influence of marsh miasmata. A stimulating regimen might prove a prophylactic in the damp and chilly atmosphere of Holland, but it is

wholly inadmissible in the exciting climate of Florida.\*

It is a law of the animal system, that a gradual and protracted exposure to morbific agents insensibly diminishes its natural susceptibility to their influence. Hence, the acclimated natives of insalubrious regions possess a comparative immunity from the diseases of the climate; or, rather, the system merely loses its susceptibility of being excited into those violent febrile commotions to which strangers, arriving from northern latitudes, are so peculiarly obnoxious in many localities in our Southern States. In the former class, the agency of this poison may be compared to a slow and concealed combustion; whilst in the latter, its operation is manifested in a raging and rapidly consuming flame. As the regular troops in Florida were almost wholly from the North, those that escaped the first summer, instead of gaining an immunity from disease by exposure to the climate, acquired an increased susceptibility of the system to it, in a less violent form. The power of resisting morbific agents, inherent in the animal organization, is so much diminished every succeeding summer, that the ratio constantly sick in each company, more especially as regards intermittent fever, bears a close relation to its period of service in the territory.

Those who advocate the doctrine of acclimatization, will be surprised to find how much the theory is opposed by numerical results. The statistical data, furnished in the West India commands, leads to the following conclusions: "1. That troops are likely to gain but little immunity from either disease or mortality by a prolonged residence in the West Indies. 2. That soldiers are not, in general, liable to any greater mortality during their first year of service there, than at any subsequent period. 3. That though, in years of ordinary mortality, corps long resident in the Island suffer as much, or even more, than those recently arrived, yet, during the ravages of epidemics, there appears a partial exemption in favor of the former." This partial exemption, however, may be reasonably ascribed to the fact that, as fear and despondency augment the susceptibility to fever, the minds of those newly arrived would be acted upon more powerfully than of those who had survived similar epidemics. The following table exhibits, in ratios per

<sup>\*&</sup>quot;I aver, from my own knowledge and custom, as well as from the custom and observation of others, that those who drink nothing but water, are but little affected by the climate, and can undergo the greatest fatigue without inconvenience."—Mosely on Tropical Diseases.

thousand of the mean strength, based upon extensive data, the influence of length of residence in the windward and leeward command:

Years.	1st.	2d.	3d.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.	General average.
Ratio of deaths per 1,000 of mean strength		87	89	63	61	79	83	73	120	109	140	85

From the table giving these results it appears that, whilst the mortality, during the first year, is in nine instances above the average, it is in twelve below it; that the mortality has increased, as often as diminished, with length of residence; and that, upon an average, the ratio of the last years is higher than the first. The prevailing opinion in regard to acclimatization is, therefore, disproved by numerical results. It may be worthy of observation that, whilst in the West Indies, and on the west coast of Africa, an attack of yellow fever secures no subsequent immunity, in Gibraltar, the same individual is seldom twice attacked—a phenomenon also observed at New Orleans.

The ensuing statistical details have been compiled from monthly returns in the Adjutant General's office. The following table exhibits the ratio of mortality, from all causes, in Florida, in 1836,-'7,-'8,-'9:

Comm	issicned of	licers, ranl	k and file.		Commiss	ioned offic	ers.
Years.	Mean strength.	Total of deaths.	Ratio of deaths per 1,000 of mean strength.	Years.	Mean strength.	Total of deaths.	Ratio of deaths per 1,000 of mean strength.
						<u> </u>	
1836	1,345	153	114	1836	75	10	133
1837	2,753	191	69	1837	113	12	116
1838	3,218	151	47	1838	108	4	37
1839	3,160	149	47				
Total -	10,476	644	-	Total -	296	26	-
Average	-	-	61	Average	-	_	88

The ratio of the troops in Florida,  $6_{10}^{-1}$  per cent., varies little from the general average of troops serving in the South in time of peace—a fact established by the results of statistical inquiries. It will be seen that this ratio is lower than that of the 4th Infantry, on an average of 10 years. As an evidence that no extraordinary mortality has been experienced in Florida, it is found that the average of the last three years, taking all the regiments in the army, is  $4_{10}^{-9}$  per cent., whilst that of the last ten years is  $4_{10}^{-4}$  per cent.; and that, although more than one-third of the actual strength of the army served in Florida in 1838,

yet the mortality of the whole army is only 4 2 per cent.—a ratio

lower than the mean of ten years.

It may be supposed that the mortality among the invalids sent out of Florida will increase the ratio; but, on investigation, it is found that it does not materially affect the result. The only return of invalids, in the Adjutant General's office, that left Florida this year, (1839,) exhibits 54 in the harbor of New York. Of these, two died of chronic diarrhæa, one of whom was excessively intemperate. Amongst the invalids sent out of Florida during the years 1836,-77,-8, no more than 17 deaths can be traced. Of these, in 1837, one died in New York harbor, and five at Fortress Monroe; and in 1838, four deaths are reported at New Orleans, and seven at Fortress Monroe. Including these fatal cases, the annual mortality in Florida, from all causes, is increased from  $6\frac{1}{10}$  to  $6\frac{3}{10}$  per cent.

The ratio of mortality among commissioned officers,  $(S_{70}^s)$  per cent.,) is higher than that of the troops in general. The ratio of sickness, however, it will be seen, is much lower. Of the 26 deaths, 7 were caused by wounds received in battle, 2 by the explosion of a steamboiler, and 17 by disease. Computing those only that died from disease, the ratio is  $5\frac{7}{10}$  per cent. In this calculation, those officers only who are reported *present* are embraced, excluding those on detached

service, and absent on furlough or with leave.

As the foregoing table is confined to the years 1836,-'7,-'8, the aggregate of killed and wounded, as exhibited below, is much greater. Amongst the officers killed, eight fell in December, 1835; and in the same month, in the affairs of Clinch and Dade, 100 of the rank and file were killed.

STATEMENT of the number of commissioned officers of the regular army, killed and wounded, and who died of disease, in Florida, up to the 1st January, 1839.

			Kil	lled.			1	Wo	und	ed.				]	Die	ł.			
Regiments and	Corps.	Lieut. Colonel.	Brevet Major.	Lieutenants.	Asst. Surgeons.	Bvt. Majors Gen.	Brevet Majors.	Captains.	Brevet Captains.	Lieutenants.	Asst. Surgeons.	Bvt. Lt. Colonels.	Majors.	Brevet Majors.	Captains.	Lieutenants.	Asst. Surgeons.	Total.	Aggregate.
General officers Artillery - Infantry - Dragoons - Medical staff		1 1	3 1 1 	- 6 2 2	- 10 - 10 - 5 - 2 1 1	5 -	- I 1 1	- 1 -	- 2 - - -	- 5 2 -	- 2 - 8 - 4 - 1 1 1	1	- 1 - -	- 1 - -	2 2 1 1	2 2 2 -	- - - 4	5 6 2 4	2 23 15 5 6
Total		2	1 4	10	1 18	2	3	1	2	7	1 16	ı	1	1	4	6	4	17	51

Amongst the "killed" are included two officers destroyed by the explosion of a steam-boiler, whilst two that committed suicide are not computed. In addition to these, a captain of the marine corps died of his wounds, and a colonel and medical officer of volunteers were killed in action. In 1838, no officer was killed, and but one wounded. Amongst the "died" are included three who left Florida sick, as well as two or three in whose death climate or exposure had very little agency.

The results in regard to non-commissioned officers and soldiers of the regular army killed and wounded in Florida, up to the 1st January,

1839, are as follows—

Killed - Wounded	-	-	-	138 261
	Total	-	-	399

The following abstract exhibits the number sick among troops serving in Florida on the last day of each month, compiled from the monthly regimental returns, thus showing the ratio constantly sick, and the influence of the seasons in the production of diseases—

ABSTRACT showing the ratio of sick, from the monthly regimental returns, &c.

	Commissioned officers, rank and file.			C	Commissioned officers.					
	1836	1837	1838	Total.	Ratio per 1,000 of mean strength constantly sick.	1836	1837	1838	Total.	Ratio per 1,000 of mean strength constantly sick.
January—Strength - Number sick -	670 69	2421 497	4409 608	7500 1174	156	37	147 4	166	<b>3</b> 50	23
February—Strength - Number sick -	1120	2389 424	4231 614	7740 1140		72 1	111 2	127	310	10
March—Strength - Number sick	1401 162	2494 361		8049 1212	150	100	112	150 0	362	6
April—Strength Number sick	1444		4279 674	8375 1250		82 5	127	141	350 9	26
May—Strength Number sick	1194	2528 410				69	115	141 3	325 8	24
June—Strength - Number sick -	1160	2398		5636 1134		52	91 9	58 0	201	
July—Strength - Number sick -	1366			5647 1312		56	77	56 2	189	
August—Strength - Number sick	1319	2132		5413		60 5	83	56 1	199	1
1	1375		1918 319	4783 1307		68		53	_	
October—Strength - Number sick	- 168 - 43		2486	7423		92			1	
~~ .	- 166 - 45	5 4169 686		9038		102	1	1		
	174	9 4431 6 533		953		110		1	1	1
Average 184 Average 31										

The most striking result in this table is, the contrast between the ratio constantly sick among officers and that of the troops in general. ratio of the officer being  $3\frac{1}{10}$  per cent., and that of the troops generally  $18_{10}^4$ , the number constantly sick is six times greater among the latter. As 184 men out of every 1,000 serving in Florida are constantly sick, this number multiplied by 365 shows the annual average of days of sickness to 1,000 troops to be 67.160, or to each about 67 days in the course of the year; and pursuing a similar calculation in regard to the officer, we find that he is subject to no more than  $11\frac{1}{3}$  days of sickness in each year. But this striking disproportion is more apparent than real; for, among soldiers, every case of disease, however slight, is registered on the hospital books—a circumstance favored by him as it relieves him from duty. Moreover, as the sick left behind, or sent to a general hospital, are not immediately on recovery ordered to their proper companies, the average may be from this cause a little too high. supposition is rendered probable by the sudden decrease, from 250 to 192, in the ratios of September and October—the period when each company gathers up its men in preparation for the opening campaign; but in referring to this result it is necessary to ascribe appropriate influence to other causes, such as change of season, as well as the accession of fresh troops from the north, by which the force is generally augmented one-half. The officer, on the contrary, seldom comes on the sick-list for slight ailments; moreover, his military pride induces him to make an effort to be reported on duty at the period of making the monthly returns. The high ratio constantly sick is to be ascribed less to the agency of climate than to the arduous and unceasing duties required of the soldier.

On comparing these results with those observed among civilians, similar remarks are applicable. The following table, showing the number constantly sick, the average extent of sickness throughout the year, and the duration of each attack, is given in Tulloch's Statistical Reports—

TABLE showing the number constantly sick, the average sickness throughout the year, and the duration of each attack—from Tulloch's Statistical Reports.

	Ages.	of Scotch	of English benefit so-	E.Ind.Co.	Portsm'th	
Constantly sick per one thousand, }	20 to 30 30 to 40	11.4 13.2	15.4 18.3	13.6 }	19.9	23.4
·		DAYS.	DAYS.	DAYS.	DAYS.	DAYS.
Average number of days sick in each year,	20 to 30 30 to 40	4.1 4.8	5.6 6.6	4.02 7 5.06 5	7.3	8.5
Average duration of each attack of sickness,	20 to 30 30 to 40	-	=	18.7 \ 22.6 \	13.2	

The striking disproportion between the ratios annually under treatment, among soldiers and among the class of civil population here presented, arises from the circumstance, that among these laborers it is cases only of so serious a nature as to create a disability for manual labor that are recorded; for, whilst among soldiers an admission upon the sick-list secures an exemption from labor, among the working classes it is attended by loss of wages. Among troops, nearly two-thirds of all the diseases are of that class which seldom incapacitate a man for the labors of civil life. In a comparison of the relative extent of sickness among the civil and military population, these facts must be kept in view.

In the Prussian army, the number constantly sick, on an average of ten years, amounts to 44 per 1,000. Among troops serving in the United Kingdom, it is about 40 per 1,000. In the Mediterranean stations, the average of Gibraltar, Malta, and the Ionian Islands, is 44. The average of the stations in British America is about 45. In the West Indies, in the Jamaica command, 63, and in the windward and leeward command, 87 are constantly ineffective from sickness. With the exception of Florida, which exhibits a ratio of 184 per 1,000, the

average of none of our stations has ever been ascertained.

The numerical results furnished in the above table confirm the opinions derived from ordinary observation in regard to the comparative unhealthfulness of the seasons. The ratio per 1,000 constantly sick in each quarter of the year is as follows—First quarter, 151; second, 175;

third, 241; and fourth, 169.

Having concluded the investigation of the various stations in east and middle Florida, the results obtained as a class will be determined. The following table exhibits the mean strength, the mortality, and the relative degree of sickness at each post prior to the present Indian difficulties, and the same in regard to the aggregate of posts for the year ending 30th September, 1839—

TABLE exhibiting the mean strength, mortality, and relative degree of sickness of the posts in East and Middle Florida.

	Mean aggregate strength.	Deaths per Adjutant General's returns.	Deaths per medical returns.	Total of cases reported.	Ratio per 1,000 of mean strength, under treatment annually.
Fort Marion	304	9	8	668	2,197
" King	408	9 13	8 7	1,150	2,819
" Brooke	596	15	11	2,011	3,374
Key West	208	24.	20	1,002	4,817
Temporary Posts	3,092	125	76	6,510	2,105
Aggregate	4,608	186	122	11,341	-
Ratio per 1,000 -	-	39*	26	-	2,461

<sup>\*</sup> The aggregate mean strength, according to the Adjutant General's returns, is 4,781.

The annual ratio of mortality, according to the medical reports, is  $2\frac{6}{10}$  per cent., and according to the post returns,  $3\frac{1}{10}$  per cent. This is the only class in which no death from epidemic cholera is reported; and in the total mortality given in the medical returns, but 8 deaths are excluded, viz. 1 drowned, and 7 from wounds. In the mortality of the temporary stations, as exhibited in the post returns, every death incidental to a state of war is given; and although the total of deaths is 49 greater than the number reported as arising from diseases, yet the average mortality is much lower than either of the two preceding classes. The ratio per 1,000 of mean strength annually under treatment being 2,461, it follows that every man, on an average, was under treatment once in nearly every five months. With the exception of the first two classes, this average is the lowest. Assuming this ratio as an exponent of the comparative salubrity of the several posts constituting this class, Key West is found in the highest extreme, and the temporary posts in the lowest.

The following table exhibits the relation of season and climate with morbid action, as illustrative of the diseases of this region—

ומ	SEA	ASES	•			Fort Marion.	Fort King.	Fort Brooke.	Key West.	Temporary Posts.	Total.	Aggregate mean strength.	Ratio of cases per 1,000 of mean strength,
INTERN	(ITT)	BNT F	EVER										
First quarter Second " Third " Fourth "	:	:	:	:		4 10 37 10	41 82 205 177	60 86 178 111	19 12 1 9	142 304 607 303	494 1028	5134 4698 4174 4421	105 244 138
Annual ratio	-	•	•	•	-	61	505	435	41	1356	2398	4608	520
REMIT	rte n	T FE	ER.										
First quarter Second " Third " Fourth "	:	:				5 24 3	2 17 40 24	10 11 16 15	3 - -	31 59 151 59	92 231	5134 4698 4174 4421	9 20 55 23
Annual ratio	-	•	-	-	-	32	83	52	3	300	470	4608	102
SYNO	сна	L FEV	ER.										
First quarter Second " Third " Fourth "	:	:	-	- - -	:	2	- 1 - 14	- 1 - 5	9 4 16 22	- 3 4 4	9 20	5134 4698 4174 4421	2
Annual ratio	-	-	-	-	-	2	15	6	51	11	85	4608	18
TY	PHUS	FEVI	n.										
First quarter Second " Third " Fourth "	-	:	•	-		1 - -	- 2	- - -	-	- - -	_	5134 4698 4174 4421	-
Annual ratio	-	-	•	•	-	1	2	-	-	-	3	4608	7-10
DIARRHEA AND DYSENTERY.													
First quarter Second " Third " Fourth "		:	:	-		11 46 18 17	14 41 26 36 —————————————————————————————————	119 68 98 79 364	23 21 15	463 358 400	641 521	5134 4698 4174 4421 	136 125 124
									·				

Second " 23 20 25 5 41 114 Third " 17 3 42 11 94 167 Fourth " 15 9 30 12 82 148  Annual ratio 86 47 153 41 331 658  PNEUMONIA.  First quarter 8 3 1 1 1 2 9 19 Third " 3 4 1 2 9 19 Fourth " 5 - 5 12  Annual ratio 14 8 9 3 34 68  PLEURITIS.  First quarter 3 1 13 2 33 52	Heave Stendarp (1974)   Property   24 40 33 143 5 4 3 3	
First quarter 31 15 56 13 114 229 Second " 23 20 25 5 41 114 Third " 17 3 42 11 94 167 Fourth " - 15 9 30 12 82 148  Annual ratio 86 47 153 41 331 658  PNEUMONIA.  First quarter 8 3 1 1 2 9 19 Third " - 1 1 2 - 7 11 Fourth " - 2 - 5 - 5 12  Annual ratio 14 8 9 3 34 68  PLEURITIS.  First quarter 3 1 13 2 33 52	4698 4174 4421 4608 5134 4698 4174 4421	24 40 33 143 5 4 3 3
Second " 23 20 25 5 41 114 Third " 17 3 42 11 94 167 Fourth " 15 9 30 12 82 148  Annual ratio 86 47 153 41 331 658  PNEUMONIA.  First quarter 8 3 1 1 1 2 9 19 Third " 3 4 1 2 9 19 Fourth " 5 - 5 12  Annual ratio 14 8 9 3 34 68  PLEURITIS.  First quarter 3 1 13 2 33 52	4698 4174 4421 4608 5134 4698 4174 4421	24 40 33 143 5 4 3 3
PNEUMONIA.  First quarter	5134 4698 4174 4421	5 4 3 3
First quarter	4698 4174 4421	3 3
Second " 3 4 1 2 9 19 Third " 1 1 1 2 - 7 11 Fourth " 5 12  Annual ratio 14 8 9 3 34 68  PLEURITIS.  First quarter 3 1 13 2 33 52	4698 4174 4421	3 3
PLEURITIS.  First quarter 3 1 13 2 33 52	4608	15
First quarter 3 1 13 2 33 52		
Third " 3 1 10 6 3 23	5134 4698 4174 4421	5 5
Annual ratio 8 4 28 11 62 113	4608	24
PHTHISIS PULMONALIS,		
Second " 4 7 11 Third " 3 1 - 1 4 9	5134 4698 4174 4421	2
Annual ratio 9 4 1 3 23 40	4608	9
RHEUMATISM.		
Second " 12 10 14 12 60 108 Third " 20 7 5 21 74 127 Fourth " 5 9 12 22 69 117	5134 4698 4174 4421 4608	

With the exception of the south-western region, the ratio of intermittents in this class is higher than that of any other; but as regards remittents, it is found that the three preceding classes present higher ratios. As respects diamhea and dysentery, the relation is the same as that of intermitting fever.

As this class of posts is comprised in a region characterized by a mild, insular climate, the numerical results in reference to the class of pulmonary diseases, as might be anticipated, are correspondingly low. The annual ratio of all pulmonary diseases, as is seen below, is only 191, whilst in the third class of the northern division it is as high as 602. Contrary to the preceding classes, the usual diversity in the averages of the seasons is not here presented, as will be subsequently explained.

The annual results in reference to the class of pulmonary diseases, as well as the mortality from each, are exhibited in the subjoined table. As it is intended to make a comparison between our northern and southern regions, it has been deemed expedient to take the mean of the middle and southern divisions; as in the northern division the total of deaths is limited to those reported in the medical returns—

TABLE exhibiting the annual results and mortality of diseases

	Ratio of cases per 1,000 of mean strength.					Deaths							
Southern region.	Mean strength.	Catarrh and influenza.	Pneumonia.	Pleuritis.	Phthisis pulmo- nalis.	Total.	Catarrh and influenza.	Pneumonia.	Pleuritis.	Phthisis pulmo- nalis.	Hæmoptysis.	Total per medi- cal returns.	Causes not specified.
Coast from Del. to Savannah*	3199	271	95	20	13	341		,	١,	19		196	10
							_		1		Ξ.		18
South-western stations	11140	290				392	-	31	2	61	2	458	75
Posts on lower Mississippi -	3381	218	22	28	9	277	-	2	2	1.0	- 1	178	30
Posts in East Florida	4607	143	15	24	9	191	-	-	1	9	-	131	17
Total	22327	246	29	40	10	326	-	34	6	99	2	963	140
									_				

The total of deaths in each month, according to the Adjutant General's returns, is exhibited in the annexed table—

TABLE showing the number of deaths in each month.

	Jan.	Feb.	Mar.	Apr.	Мау.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Total of deaths in each month.		17	7	10	11	16	20	22	28	14	13	19	186

<sup>\*</sup> Fort Monroe is excluded from this class. There are reported 4 deaths from influenza, 8 from pneumonia, and 17 from phthisis pulmonalis,

## GENERAL RESULTS.

Having completed the specific details of each division, and of each class of posts, the numerical results of these classes will be given, with the view to general conclusions.

The ratio of mortality, and the relative degree of sickness in each class, are exhibited in the following table, the divisions being limited to

two, the northern and the southern-

TABLE exhibiting the ratio of mortality and the relative degree of sickness in each class.

•	Mean aggregate strength.	Ratio of deaths per 1,000 by Adjt.Gen'ral's returns.	Ratio of deaths  per 1,000 by Medical returns.	Total of cases reported.	Ratio per 1,000 mean strength under treat- ment annually
1st Class, Northern Lakes	5,975	13	9	13,053	2,185
2d " Coast of New England - 3d " Posts north of latitude 39°,	3,663	20	15	7,004	1,912
and remote from the ocean and lakes	12,604	14	8	39,104	3,103
Ratio of Northern Division -	22,242	15	9	59,161	2,660
4th Class, Coast from Delaware bay					
to Savannah	5,850	34	30	16,907	2,890
5th Class, South-western stations - 6th " Posts on the lower Missis-	11,140	45	36	39,030	3,504
sippi	3,381	53	44	9,669	2,860
7th Class, Posts in East Florida -	4,608	39	26	11,341	2,461
Ratio of Southern Division -	24,979	42	34	76,947	3,080
Average	47,221	30	22	136,108	2,882

The annual ratio of mortality, on an average of all the posts, is, according to the Adjutant General's returns, 3 per cent., and according to the medical reports  $2\frac{2}{10}$  per cent. In each calculation, the deaths from epidemic cholera (130) are excluded; and in the latter, those also reported as suicide, asphyxia from cold or submersion, &c. The mortality, by the medical returns, may be therefore regarded as a pretty fair expression of climatic influence. The difference between the ratio of mortality of the northern and southern division is quite striking, the average of the latter being, according to the medical returns, nearly fourfold greater, and, according to the post returns, nearly three times higher, than that of the former. This disparity is equally manifest in the statistics of the first part, as shown by the results of four years, terminating with 1825. In 1822, this inequality, according to the post returns, is very remarkable, the annual ratio of mortality in the southern division

being  $13_{16}$ , and in the northern no more than  $1_{16}$ , per cent. A distinguishing feature between these two divisions is, that the northern exhibits little variation in the annual mortality, whilst the southern, in consequence of more fatal epidemic visitations, shows great extremes.

In regard to the comparative state of health among the troops, this table affords the following conclusions:—The ratio per 1,000 of mean strength annually under treatment, in the Northern division, being 2,660, it follows that every man, on an average, was reported sick once in every four months and a half. Pursuing the same calculation in respect to the the Southern division, the period is found to be very nearly four months; whilst the average of all posts included in these statistics is four months Assuming this ratio of sickness as an index of the comparative salubrity of the several regions represented by each class of posts, it is found that the coast of New England is on the lowest extreme, and the southwestern stations on the highest. The high ratio of the third class of the Northern division is more apparent than real, inasmuch as an extraordinary number of slight affections are reported among the cadets of the Military Academy. It has been already shown that, as diseases differ in their tendency to a favorable issue, this average is liable to lead to error; thus, although the extent of disease in the sixth class is comparatively low, yet the mortality, owing to the malignant nature of febrile diseases, is higher than any other class. During the ravages of epidemic fever, the mortality may be very great without the average number in the hospital being materially augmented. In the windward and leeward command of the West Indies, for example, the mortality is six times as high as in the United Kingdom, although the extent of sickness, as shown by the number of admissions into hospital, is but twice as great.

The disproportion between the relative extent of sickness among the military and civilians was brought under notice in considering the general results of the second class of the Southern division; but this striking disparity, it was shown, is ascribable to peculiarities of condition not apparent at first view. The extent and duration of sickness among the working classes have frequently engaged the attention of British legislation. In regard to the influence of age on disease and mortality, it has been determined that from birth to the age of puberty they decline, and that from this period they increase slowly, but in geometrical progression, up to the 50th or 60th year, and then more rapidly to the end of life.

In continuation of the subject of mortality, the following abstract, exhibiting the mean strength of every regiment, and the deaths in each for the period of ten years, compiled from monthly returns in the Adjutant General's office, is given—

ABSTRACT exhibiting the mean strength of every Regiment, and the doubs in each for a period of ten years, coupiled from the monthly returns in the Adjutant General's office.

t	1	1	33	7
	2d Drag.	Deaths.		29
	2d ]	Strength.	578	1325
	rag.	Deaths.	6 91 18 15 15 13 13	176
	1st I	Strength.	*147 463 530 559 583 583	2804
	7th Inf'y. 1st Drag.	Destha.	16 17 17 18 18 18 18 18	264
	7th I	Strength.	415 464 446 493 496 496 483 483 481 481	4610
	nf'y.	Deaths.	29 16 63 63 7 7 17 18 18	255
	6th Inf'y.	Strength	44 469 450 450 450 450 450 450 450 450 450 450	4.465
	5th Inf'y.	Destha.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	59
	5th I	Strength.	499 489 415 440 513 513 513 505 396 388	4451
	4th Inf'y.	Deaths.	23 2 2 3 1 1 2 2 3 1 1 1 1 1 1 1 1 1 1 1	344
	4th I	Strength.	453 477 485 446 446 442 369 460 480	4521
	3d Inf'y.	Desths.	26 18 16 16 13 13 13 13	161
	3d Ir	Strength.	432 469 454 502 442 442 452 418 378 450	4465
	ıf'y.	Deaths.	34 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	115
	2d Inf'y.	Strength.	496 472 4572 4572 512 512 494 498 498 538	4953
	ıf'y.	Desths.	8 14 11 19 19 6 10 9 9	126
	1st Ir	Strength.	441 474 468 415 399 480 488 421 342 521	4449
ľ	3d Art'y. 4th Art'y. 1st Inf'y.	Deaths.	14 8 9 66 14 7 7 7 11 16 16	167
	4th A	Strength.	516 498 505 492 488 495 495 476 407	4917
	rt'y.	Deaths.	15 10 10 10 10 10 10 10 10 10 10 10 10 10	218
	3d A	Strength.	499 507 475 470 461 481 506 414 506	4759
	Art'y.	Deaths.	20 20 20 80 11 80 12 80 81 83 83 83 84 84 84	272
	24	Strength.	481 464 471 465 456 431 431 401 401 477	4538
1	t Art'y.	Deaths.	15 25 54 54 77 12 12 13 14 14 15	231
	1st A	Strength.	519 528 472 495 485 512 521	Tot.1 4892
	`	VEARS.	1829 1830 1831 1832 1833 1835 1835 1836 1838	Tot.

\* The mean strength is 353; but, as the corps was organized but five months in this year, it is equivalent to 147.

TABLE showing the annual ratio of mortality in each regiment, condensed from the preceding abstract.

CORPS.		Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1st Artillery, - 2d Artillery, - 3d Artillery, - 4th Artillery, - 1st Infantry, - 2d Infantry, - 3d Infantry, - 5th Infantry, - 5th Infantry, - 7th Infantry, - 7th Infantry, - 1st Dragoons, - 2d Dragoons, -		4,892 4,538 4,759 4,917 4,449 4,953 4,465 4,521 4,451 4,465 4,610 2,804 1,325	231 272 218 167 126 115 161 344 59 255 264 176 67	47 60 46 34 29 23 36 76 13 57 57 63 51
Total Average, -	-	55,149	2,455	44

TABLE showing the annual ratio of mortality in the aggregate of Regiments.

Years.	Strength.	Deaths.	Ratio of deaths per 1,000 of mean strength.
1829 1830 1831 1832	5,183 5,324 5,273 5,183	184 173 153 354	36 32 29 68
1833 1834 1835 1836	5,224 5,644 5,900 5,292	159 320 289 256	30 57 49 48
1837 1838	5,484 6,642	289 278	53 42
Total  Average -	55,149	2,455	44

From these calculations it appears that the annual ratio of mortality in the United States army, from all causes—" ordinary, killed in action, died of wounds, and accidental"—is  $4\frac{4}{10}$  per cent. This average is a fraction higher than the ratio of the three years ending with 1825, being

 $3_{10}^{7}$  per cent. The mortality of the four years commencing with 1819, although not precisely determined, is considerably higher. Compared with the results obtained in other countries, considerable diversity is presented. In the West Indies, the mortality of British troops, on an average of a period of twenty years terminating with 1836, is 9,5 per cent., and among the black troops 3 8 per cent., the mean being 7 8 per This ratio, both among white and black troops, is about 50 per cent. lower than during the preceding twenty years. In British America we have the following results, based on the statistics of twenty years, ending with 1836—the Bermudas, 2,9 per cent.; Nova Scotia and New Brunswick,  $1\frac{4}{10}$  per cent.; Canada,  $1\frac{5}{10}$ , and Newfoundland, (on an average of 12 years,)  $3\frac{8}{10}$  per cent. In the Mediterranean, on an average of twenty years, the annual rate of mortality at Gibraltar is  $2\frac{1}{10}$  per cent.; at Malta, 1,10, and the Ionian Islands, 2,4 per cent. The rate of the British troops serving at home, being the result of the statistics of seven years commencing with 1830, is  $1_{10}^{7}$  per cent. In the East Indies, at Bengal, the mortality of European troops is  $5\frac{7}{10}$  per cent., whilst that of the native troops in the Madras Presidency is only  $1\frac{4}{10}$  per cent. The mortality of the French army on the home station is about 2 per cent. In the Prussian army, the ratio is  $1\frac{1}{10}$  per cent.; but this low scale of mortality is attributable less to greater salubrity of climate than to the circumstance that the soldiers are almost entirely between the ages of 20 and 25. The mean ratios of the following British stations, on an average of six years, from 1831 to 1837, stand thus: Ceylon  $4\frac{8}{10}$ , Mauritius  $3\frac{5}{10}$ , Cape of Good Hope  $1_{10}^8$ , Bombay  $3_{10}^8$ , Madras  $5_{10}^2$ , and New South Wales  $1_{10}^4$ .

The profession of arms during peace, as shown among the troops serving in the United Kingdom, involves no greater risk of life than that which attends civil pursuits. The ratio of mortality among the Dragoon Guards and Dragoons, whose average age was from 29 to 30, is  $15\frac{3}{10}$  per thousand of the force annually. Taking a mean of the Carlisle Tables, the Government Annuity Calculations, and the Population Returns, the mortality among civilians at this period of life amounts to  $11\frac{1}{2}$  per 1,000; but as this calculation is based on the average of town and country, whilst the troops are quartered principally in towns, the ratio is nearly equal. Marts of commerce have been truly designated "the sepulchres of the dead, and hospitals of the living." The unfavorable influence of density of population on health, is apparent from the single fact, that the average of 17 of the principal towns in Great Britain, taken from Parliamentary returns, shows the mortality of the civil population to be, instead of  $11\frac{1}{2}$ , upwards of 16 per 1,000. The result is, therefore, in favor of the military.

In the tables just given, showing the mortality of each regiment, some striking facts are presented. The extremes of mortality are exhibited in the 4th and 5th regiments of Infantry. The latter, which has had a kind of home station on our northern lakes, gives an annual rate as low as  $1_{10}^{3}$ ; whilst the former, which has borne the "tug of war" in climes less genial, shows an average of  $7_{10}^{6}$  per cent. The attention is also arrested by the results presented in the last three years; for, it is seen that the Florida war, as already shown, has not augmented the general mortality. The average of these three years is about the same as the

ratio of ten years.

The subjoined outline of the stations occupied, and the duties performed, by each regiment, will serve to illustrate the numerical results furnished by the statistical data. Having investigated the medical topography of our military posts, we are now enabled to study with profit, in proportion as a correct knowledge of the relative influence of each region has been attained, the connexion between the mortality exhibited and the positions occupied.

Proceeding on the scale of increasing mortality, the lowest ratio,  $1_{75}^{*}$  per cent., is that of the 5th Infantry, which, in 1829, garrisoned Forts Brady, Howard, Mackinac, and Dearborn, and continued, during the

ten years, in nearly the same position on the lakes.

The 2d Infantry,  $2\frac{3}{16}$  per cent., occupied in 1829 Hancock and Madison Barracks, and Forts Gratiot and Niagara. It continued in the same region until 1837, when six companies were ordered to Florida; and in 1838 the whole regiment served in the Seminole campaigns.

The 1st Infantry,  $2\frac{9}{10}$  per cent., in 1829 was stationed at Forts Snelling, Crawford, and Winnebago. It remained in the Northwestern Territory until 1837, in which year, and in 1838, it served in Florida.

The 4th Artillery,  $3\frac{1}{10}$  per cent., in 1829, garrisoned Forts Columbus, Delaware, McHenry, and Severn. Until 1836, no company got farther south than Charleston Harbor. In 1836–'7–'8, it served among the

Creeks, Seminoles, and Cherokees.

The 3d Infantry,  $3\frac{6}{10}$  per cent., in 1829, occupied Fort Armstrong and Jefferson Barracks. In 1830, the same posts—four companies being detached on Red river, and two in the Creek nation. In 1831, it was removed to Forts Jesup and Towson, on which frontier the regiment remained.

The 3d Artillery,  $4_{70}^{6}$  per cent., from 1829 to 1835 inclusive, was stationed on the coast of New England. In 1831, three companies were detached to Fort Monroe; in 1832, two to Charleston harbor; in 1833, two to the Creek nation; and in 1834, two to Fort Brooke, Florida. In 1836–77, the regiment served in Florida; and in 1838, it marched to the Cherokee nation and back to Florida.

The 1st Artillery,  $4\frac{7}{10}$  per cent., garrisoned in 1829 Forts Monroe, Johnston, and Washington, and Bellona Arsenal. In 1830,–'1,–'2, the same posts, three companies having, in the last year, removed to Charleston harbor. In 1833–'4-'5, it was still on the middle coast. In 1836-'7,

it served in Florida; and in 1838, on the frontiers of Canada.

The 2d Dragoons,  $5\frac{1}{10}$  per cent., served nearly altogether in East Florida.

The 6th Infantry,  $5\frac{7}{10}$  per cent., in 1829–'30–'1–'2–'3, was stationed at Jefferson Barracks and Cantonment Leavenworth; in 1834–'5, at Jefferson Barracks; in 1836, on the Sabine; and in 1837–'8, in Florida.

The 7th Infantry, 5,7 per cent., in 1829 occupied Forts Gibson and

Jesup, and continued on the southwestern frontier.

The 2d Artillery, 6 per cent., from 1829 to 1835 inclusive, was stationed on the sea-board from Charleston to New Orleans, and at Fort Mitchell and Augusta Arsenal. In 1836–'7, it served in Florida; and in 1838, marched to the Cherokee Nation, and thence to the frontiers of Canada.

The 1st Dragoons, 6 3 per cent., in 1834 garrisoned Forts Gibson, Des Moines, and Leavenworth. Its operations have been confined to the same region, making frequent tours among the Indian tribes. 1834, one company was detached as an escort to a caravan of traders to Santa Fé in Mexico.

The 4th Infantry, 7 6 per cent., from 1829 to 1835, occupied Forts Clinch, Brooke, King, Mitchell, and St. Philip, Augusta Arsenal, Key West, New Orleans, and Baton Rouge. In 1836-7, it served in the

Seminole campaigns, and in 1838 in the Cherokee nation.

Having already determined the comparative salubrity of each system of climate, confirmation is afforded in the fact that the mortality of each regiment bears a ratio corresponding to these laws. The high mortality of our army, compared with that of British troops at home, in the Mediterranean, and in British America, is, in a great measure, susceptible of explanation. Although our troops are better paid, fed, and clothed than those of any other nation, yet, as they are distributed along a seaboard of more than 3,000 miles, and an inland frontier of perhaps equal extent, and as the condition of our Indian tribes and other causes demand their frequent removal from one extremity to the other, the duties of the soldier are often very arduous. A regiment recently, in the course of one year, marched 4,000 miles, 1,000 of which were performed on foot. Independently of marching and fighting, the duties required of the soldier are generally very laborious. Cutting roads, building bridges, con-

structing forts, &c., also fall to his share of duty.

Scarce a year passes without some hostile demonstration. In 1829, the unsettled state of the Crecks, and the intrusion upon the lands of the Cherokees, required the advance of troops; and to afford protection to the trade carried on with the Mexican States, a detachment was ordered to escort the caravans as far as our boundary line. In 1830, our troops were kept in motion by Indian disturbance on Red river; by threatened hostilities among the tribes inhabiting the country around Prairie du Chien; by the lawless intruders upon the mineral district of the Cherokees within the limits of Georgia; and by negro insurrectionary movements about New Orleans. In 1831, we had disturbance among the Sac Indians, and servile insurrection in Virginia. In 1832 came the war of Black Hawk, when the most formidable enemy encoun-In 1834, Colonel Dodge's command, in his expetered was cholera. dition among the Camanches, Pawnees, and Kiowas, suffered much from sickness. In 1835 the Dragoons, divided into three squadrons, made tours through almost the entire extent of our territory west of the Mississippi, below the 44° of latitude. In the same year occurred Dade's disaster. In 1836, we had the Seminole war, Creek and Cherokee difficulties, and threatened hostilities on the Texian frontier. In 1837, the Florida war and Cherokee troubles continued; and, in 1838, in addition to these difficulties, disturbances were manifested on the Canada frontier.

In continuation of the "General Results," a condensed view of the facts developed in each class, in reference to certain specific diseases having a close relation with season and climate, will be given. The following table shows the ratio of cases of each disease, per 1,000 of

mean strength, reported quarterly and annually-

TABLE exhibiting the ratio of cases of each disease per 1,000 of mean strength, reported quarterly and annually.

i i	silus	253 170 305	569	455 597 456 495	526	40.5
itery	Annual re-					1
)ysen	4th quarter.	49 22 56	49	65 121 72 124	66	75
Diarrhæa and Dysentery.	3d quarter.	121 108 163	143	204 223 117 125	190	166
rhæa	2d quarter.	54 26 54	49	133 185 135 136	156	107
Dia	lst quarter.	34 14 32	30	41 62 126 111	2/2	54
	-91 leunna -silus	4 5 9-10	2 4-10	3 4 13 7-10	4 4-10	3 5-10
ıns.	4th quarter.	1 8-10 1 8-10	7-10	1 1 3-10 3 5-10	1 2-10	_
Feb. Typhus.	3d quarter.	2 4-10	8-10	1 2-10 1 4-10 3	5-10 13-10 13-10 12-10 44-10	-
F	2d quarter.	5-10 2 1-10	5-10	3-10	1 3-10	1
	lst quarter.	1 - 3-10	4-10	7-10 2-10 2-10	5-10	5-10
-	An'l results	16 43 45	37	7 27 5 25 14 60 10 18	7 25	7 33
loc	4th quarter.	6 11 3	1 9	7 2 4 0	1 -	
y y	3d quarter.	91	Ī	9 4 8 9	1 6	8 10
	2d quarter	1 2 14 13 1 1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1	_ = _ =	04108	<del> </del> 9	<u></u>
Feb. Synoch.	lst quarter.	487	- 6	8 22 28 00	1 2	- oo
	Annual re-	33 4 26 12 24 11	36	181 180 196 2 102	168	101
nit	4th quarter.	4 9 9	1 20	23 23 23 23 23	<u>i                                    </u>	23
Feb. Remit.	3d quarter.	21 8 8 13	14	110 104 86 86 55	95 38	58 22
Fe	2d quarter.	900	1 10	20 119 47 20	1 83	7 15
	lst quarter.	ದ ಅ ಅ	63	3 20 12 19 17 47 9 20	10 23	2
	Annual re- results,	193 36 151	143	370 3 2 747 12 1 385 17 4 520 9 2	568	368
mit.	Ath quarter.	36	35	101 197 90 138	146	93
Feb. Intermit.	3d quarter.	77 111 57	55	158 305 170 244	243	156
Feb.	2d quarter.	73 15 34	41	71 129 77 105	103	75
	lst quarter.	13	15	41 101 62 52	71	45
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1		t cl and ad c	tio of Iv	rth h cl h c	ttio of vision	rag
		First class Second class Third class	Ratio of Northern division	Fourth class Fifth class Sixth class Seventh class	Ratio of Southern vision	Average -

The data upon which the ratio of each division, and the average of the whole are based, are presented in the annexed abstract—

TABLE showing the data upon which the ratio of each division and the average of the whole are based.

Northern Division.	Mean Strength.	Total cases of feb. int.	Total cases of feb. rem.	Total cases of feb. syn-och.	Total cases of feb. ty-phus.	Total cases of diarrhæa and dysentery.						
1st quarter 2d quarter 3d quarter 4th quarter	- 23,226 - 21,164 - 21,775 - 22,801	354 868 1,188 777	56 100 308 123	219 230 242 154	10 11 17 16	690 1,046 3,119 1,126						
Total Southern Division.	- 22,240	3,187	587	825	54	5,981						
1st quarter 2d quarter 3d quarter 4th quarter	- 25,751 - 25,146 - 25,206 - 24,817	1,836 2,589 6,127 3,632	257 587 2,407 945	176 140 225 177	13 34 32 31	1,965 3,920 4,781 2,469						
Total	- 24,979	14,184	4,196	718	110	13,135						
Aggregate -	47,219	17,371	4,783	1,543	164	19,116						

The results afforded in these tables are valuable as indicating the actual ratio in which these diseases prevail, both in reference to the influences of season and climate. As regards the comparative prevalence of intermittent fever in the northern and southern divisions, the annual ratio per 1,000 is as 143 to 568. In the northern division the second class, or coast of New England, is nearly wholly exempt from this disease, most of the cases reported being of foreign origin. The first class, or region of the lakes, gives the highest ratio. The third, comprising the posts remote from the ocean and the great lakes, also gives a high average; but this is owing chiefly to the locality and latitude of Forts Crawford and Leavenworth, the disease being little known at the remaining stations of this class. In the southern division, the results demonstrate that diseases of malarial origin increase in proportion as southern latitudes are reached; but this law receives modification in this, that inland regions, contrasted with those on the coast in the same latitude, have, owing doubtless to the greater summer heats, a higher average. The annual ratio of the fourth class, embracing the posts on the sea-coast and the estuaries between the Delaware and Savannah rivers, is, for example, 370, whilst the average of the southwestern stations rises to 747. The ratio of the sixth class is only 385, but it is to be remarked that the troops were generally removed to healthy summer encampments. The ratio of the seventh class (East Florida) is 520.

In relation to diarrhea and dysentery the same laws, it is seen, hold good generally in both divisions. This general fact is confirmed by the singular relation, on comparing the second and third quarters in Florida, between intermitting and remitting fevers and the class of diseases of the digestive organs, already brought under notice. Whilst, in the second quarter, the ratio of the former is lower than that of the latter, in the third the reverse occurs. Assuming an identity of cause, it would seem that the same morbific agents, in proportion to their degree of intensity of action, may produce either class of lesions.

Before proceeding further in tracing out these relations, it will be necessary to frame a general summary of the mortality arising from specific diseases. In the course of this inquiry, those diseases which have a manifest dependance on season and climate have been more particularly investigated; but the following table, including these results, exhibits a

more general view of diseases.

TABLE exhibiting a general view of diseases in the Northern and Southern divisions.

	North	ern div	ision.	South	ern div	ision.
Specific diseases.	Total of cases treated.	Total deaths.	Proportion of deaths to the number treated.	Total of cases treated.	Total deaths.	Proportion of deaths to the number treated.
Feb. Intermittens	3,187	1	1 in 3,187	14,094	13	1 in 1,084
" Remittens	587	12	1 in 49	4,196	145	1 in 29
" Synochus	825	2	1 in 412	718	11	1 in 65
" 'Typhus	54	8	1 in 7	110	24	lin 5
Catarrh and influenza	9,538	1	1 in 9,538	7,471	4	1 in 1,868
Pneumonia	610	8	1 in 76	900	42	1 in 21
Pleuritis	652	1	1 in 652	1,060	6	l in 177
Phthisis pulmonalis	152	46	1 in33-10	257	116	l in 2
Hœmoptysis	83	1	1 in 83	84	2	1 in 42
Dysenteria }	5,981	4 7 5 5	1 in 665	13,135	38 } 55 }	lin 141
				1	55 5	
Gastritis and enteritis	289	1	1 in 289	633	26	1 in 24
Cholic and cholera	3,221	2	1 in 1,610	3,282	7	1 in 469
Epidemic cholera	302	103	1 in 3		88	1 in4 3-10
Hepatitis, acut. et chron.	98	3	1 in 33		4	1 in 41
Phrenitis and meningitis -	18	3	1 in 6	31	5	1 in 6
Apoplexia	6	4	1 in15-10	25	10	1 in 25-10 1 in 21
Epilepsia	166	5	1 in 33		9	
Mania a potu	102	3	1 in 34		39	1 in 8
Ebrietas	1,370	5	1 in 274		58	
Nyctalopia	18	-	0 in 18			
Rheumatismus	3,412		0 in 3,412		1	1 in 2,845
Gonorrhœa	971	-	0 in 971	929	-	0 in 929
Syphilis	462	1	1 in 462		-	0 in 584
Hydrops.	50	4	1 in 12	206	19	1 in 11
Atrophia and chronic visceral					16	
lesions	-	9	-	-	50	_
Casualties	-	35	-	-	7	_
Suddenly	-	3	-	-	28	_
All other diseases	-	11	-	-	28	-
Total	32,154_	281	1 in 144	54,411	823	l in 75

In addition to this mortality, there are reported in the northern division 43 deaths, the causes of which are not specified, making an aggregate of 324; and in the southern division 140 deaths of the same class, making an aggregate of 963. The conclusions deduced from this table are, therefore, merely approximations to the truth; inasmuch as in the former division, the causes of about one-eighth, and in the latter the causes of about one-seventh, of the deaths, are not reported. It may be fairly inferred, however, that the majority of these last belong to the class of sudden or casualties.

It is of course impossible in the narrow limits of these observations to do more than direct attention to the most important facts; but to him, disposed to inquire more minutely into these subjects, the necessary

materials are here afforded.

On a comparison of the northern and southern divisions in relation to remittent fever, the annual ratio of cases per 1,000 of mean strength, stands as 26 to 168. In the northern division, the contrast in the averages of the three classes is not so great as might, a priori, have been inferred, on the supposition of its common origin with intermitting fever, and in view of the comparative exemption of the coast of New England from this form of fever. In the southern division, in which the ratio is more than six times higher than in the northern, the classes present no great extremes. It is worthy of remark that the sixth class, remarkable for a low ratio of intermitting fever, gives the highest aver-

age of remitting fever.

The ratio of mortality from intermitting fever, it is seen, is exceedingly low. It may be said that it is only in our southern latitudes, when violent congestions of internal organs occur, that death takes place in this disease. The mortality from remittent fever, in the northern division, is  $\frac{5}{10}$ , and in the southern, 6, per 1,000 of the mean strength. In the former the proportion of deaths to the number of cases is 1 in 49, and in the latter 1 in 29. Of the fatal cases of remittent fever, 23 are reported under the name of yellow fever; but some are doubtless registered under the former term. Amongst the troops in Canada, the annual ratio of mortality from remittent fever is one per 3,571 of the strength; whilst in Nova Scotia and New Brunswick, no

death arose from this cause in 20 years.

The cases registered as synocha, synochus, common continued, ephemeral, and inflammatory fevers, are included under the head of synochal fever, but the majority of the whole consist of cases reported under the last name. The ratio is higher in the northern than in the southern division, being as 37 to 25; but the average mortality is lower. In the former, the proportion of deaths to the number treated is one in 412, and in the latter, one in 65. In the former, the ratio per 1,000 of strength is 1 in 11,120; and in the latter, 1 in 2,271. In Canada it is 1 in 574, and in Nova Scotia and New Brunswick, 1 in 737. In Nova Scotia and New Brunswick, nearly all fevers are of the common continued type, prevalent in every climate. Whilst in Lower Canada the ratio of intermitting and remitting fever is exceedingly low, in Upper Canada it is comparatively high, being as 13 to 89. Besides, many of

the cases reported in Lower Canada occurred among soldiers who had come from the upper provinces. The same relation has been observed between the coast of New England and the region of the lakes. What seems inexplicable, however, is the fact, as remarked by the British reporter, that whilst they prevail along the shores of the lakes and the margins of the streams in Upper Canada, they are comparatively rare in similar situations in the lower provinces. The troops and inhabitants at Windsor, Annapolis, Fort Cumberland, and Frederickton, possess this exemption, notwithstanding their situation at the embouchure of rivers, and exposure to the influence of that combination of mud and

marsh regarded as its prolific source.

Although typhus fever, regarded as a contagious disease, may have little connexion with general atmospheric causes, yet it is placed here to complete the view of febrile affections. It is a disease of comparative infrequency; for, in the northern division only 24, and in the southern 44, cases per 10,000 men have been annually reported. Subject to vague and arbitrary application, the term typhus is doubtless often used to designate a typhoid state of fever—a supposition favored by the fact that the ratio is higher in the southern than in the northern division. Genuine typhus is generated by that species of miasmata evolved in crowded, ill-ventilated ships, jails, hospitals, and the sordid hovels of the poor; and when once developed, there is every reason to believe that it elaborates a peculiar virus communicable to those coming within the sphere of its activity. In the northern division, 54 cases and 8 deaths, and in the southern, 110 cases and 24 deaths, are reported. Of the latter, 12 fatal cases are reported at Baton Rouge under the name of congestive typhus. In the United States, the annual ratio of deaths from this disease is 1 in 1,476 of the strength; in Canada, it is 1 in 4,944; and in Nova Scotia and New Brunswick, 1 in 6,635.

The average annual mortality from all the fevers brought under notice, per 1,000 of the mean strength, is, among our troops,  $4^{\circ}_{10}$ , and among the British forces serving in Canada, it is  $2^{\circ}_{10}$ —in Nova Scotia and New Brunswick,  $1^{\circ}_{10}$ —and in the West Indies, in the windward and leeward command, 37, and in the Jamaica command, 102. In the last, then, based upon the statistics of 20 years, and embracing an aggregate strength of 51,567, the ratio is 25 times higher than among our forces. It must be borne in mind, however, that one-eighth of the

causes of death, in our reports, is not specified.

In respect to cholic and common cholera, the annual ratio of cases, per 1,000 of mean strength, in the northern division, is 145, and in the southern, 131. It is found, however, that in the former division nearly one-half the cases (1,445) are reported at a single post, (West Point,) with a mean aggregate strength of 3,734. It has been already remarked that many of the diseases registered among the cadets are of a very trivial nature. Leaving these data out of the calculation, the ratio of this division is reduced to 96. As the striking contrast between the northern and southern divisions, in regard to intermittent and remittent fever, and diarrhea and dysentery, does not obtain in relation to cholera and cholic, the inference, that these diseases are not much dependent upon malarious causes, is fairly warranted.

In the northern division, 2 deaths are reported from these affections,

and in the southern, 7.

Of epidemic cholera there are 686 cases reported, of which 191 terminated fatally. The history of this epidemic has been given in the details of the posts, as the subject presented itself, but it is believed that some cases and deaths have not been reported, at least in the campaign against Black Hawk, when two medical officers became its victims.

An extraordinary feature of this epidemic is, that the ratio of deaths, to the number of cases treated, varies very little in all the military commands—the statistics of which have been investigated. Thus, the pro-

portion of deaths, to the number of cases, is as under-

United Kingdom, in 1832,-'3,-'4				32 pe	r centum.
Gibraltar, in 1834 -	-	-		30	66
Nova Scotia and New Brunswick,	in 1	834	-	28	"
Canada, in 1832	-	-	-	36	46
Canada, in 1834	-	-	-	34	"
Black troops, at Honduras, in 1836	; -	-	-	32	66
United States army, in 1832,-'3,-'	4 -	-	-	28	"

Hence it seems that, under the various modes of treatment adopted, little variation is presented in the results. Among our troops, however, it appears that the disease was considerably more fatal in the northern than in the southern division, the ratio of deaths to cases being in the former 1 to 3, and in the latter 1 to  $4\frac{3}{10}$ . It may be well to add that all cases reported as *cholerine* have been included under the head of common cholera. The influence of the seasons is apparent from the fact that, in the first quarter 4 deaths, in the second 22, in the third 153, and in the fourth 12, are reported.

From gastritis and enteritis, there are reported in the northern division 1 death, and in the southern 26—the proportion of deaths to the number treated being in the former 1 in 289, and in the latter 1 in 24.

In regard to the relative prevalence of diarrhæa and dysentery, reference has already been made, both in respect to season and climate. These cases have been condensed under one head, but the mortality arising from each is given separately. In the northern division, the proportion of deaths to the number treated is 1 in 665, and in the southern, 1 in 141; and the mortality per 10,000 of the strength is respectively 4 and 37. In the northern division, there is no death reported as arising from dysentery at any posts, except Forts Crawford and Leavenworth. In the West Indies the ratio of deaths from these diseases, per 1,000 of the strength, is, in the windward and leeward command, 19, and in the Jamaica command, 4; thus reversing the relative mortality arising from fevers.

The reputed agency of diet in the production of diseases of the bowels has been confirmed by numerical results in the West Indies. In one command, in which for five days in the week the diet consisted of salt provisions, the mortality from diseases of this class was nine times greater than among the officers; whilst in another, (Jamaica,) in which only two days' salt provisions were issued weekly, the mortality

of the two classes presented very little difference. These are no isolated facts, but uniform results deduced from 20 years' observation. But the elevated temperature of tropical regions, independently of other causes, seems positively detrimental to health. The absorbents of the intestines being maintained in a state of erethism by the constant evaporation by cutaneous and pulmonary transpiration, a morbid condition is readily assumed under favorable exciting influences. Diarrhæa, dysentery, cholera, hepatitis, and those bilious derangements which accompany

fevers, are consequently prevailing affections.

Of acute and chronic hepatitis, the total of cases in the northern division is 98, and in the southern 166, the ratio of the former per 1,000 being  $4\frac{1}{10}$ , and of the latter  $6\frac{6}{10}$ . It thus appears that in the southern division the ratio is one-half higher. That these diseases prevail to a greater extent, more especially in our southern latitudes, than is here indicated, is no doubt generally believed. It is found, however, that the ratio of these affections, including icterus, is no more than 18 per 1,000 in the West India commands, whilst the deaths average  $1\frac{1}{10}$ . It is in the East Indies that hepatitis finds a climate peculiarly favorable to its development. Although the mortality is low in the West Indies, yet it is found, among our troops, to be not more than one-tenth as high. As regards the ratio of deaths to the number of cases, there is little difference in our northern and southern latitudes.

Of apoplexy in the northern division, the total of cases is 4, and in the southern 25, the ratio of the latter being six times as high. As the exciting causes of these cases were chiefly the intemperate use of spirituous liquors, and exposure to the direct rays of the sun, several being reported as *ictus solis*, the higher average in the south might have been readily anticipated. In the southern division, the ratio of deaths to the cases treated is nearly twice as high as in the northern. As regards phrenitis and meningitis, it is found that the relative results, on a comparison of the north and south, are very like those of the preceding

disease.

The dreadful effects induced by inebriation have been shown in the details of each post. It has been attempted, as is seen in the table of each post, to condense certain cases under the head of "ebriety;" but as some medical officers reported no such cases, except under the general head of "all other diseases," the result, as regards the number of cases, falls short of the reality. Its agency, directly and indirectly, in the causation of phthisis pulmonalis and epidemic cholera, has been abundantly pointed out; and its intimate connexion with febrile diseases, diarrhæa and dysentery, and hepatitis, although not definitely determined, is so apparent that it is constantly dwelt upon in the reports of medical officers. Its relation with apoplexy has just been brought under notice; and now the subject of "ebrietas" comes under consideration.

In the northern division, the total of cases reported as ebriety is 1,370, and the deaths, 5, being one in 274; and in the southern, the total of cases is 2,616, and the deaths 58, being 1 in 45. Assuming that inebriation prevails to an equal extent in the two divisions, it appears that in

northern latitudes it is attended with comparative immunity, as regards its immediate effects; for the deaths from this cause average in the northern division 2, and in the southern 23, annually, per 10,000 of the strength. But this subject admits of further elucidation.

Of delirium tremens there are reported, in the northern division, 102 cases and 3 deaths, being 1 in 34; and in the southern, 306 cases and 39 deaths, being 1 in 8. The annual mortality per 10,000 is,

therefore, in the north upwards of one, and in the south 16.

The total of epileptic cases, which generally arise from the excessive use of ardent spirits, is, in the northern division, 166 and in the southern 188, the annual ratio of each being  $7\frac{s}{10}$  per 1,000; but in this affection, too, the mortality is higher in southern latitudes, being in the

former division 1 in 33, and in the latter 1 in 21 cases.

These are not, however, the only deaths arising from drunkenness. Of the 10 deaths reported as *sudden*, the majority is doubtless attributable to this cause. Of the 25 deaths from various chronic visceral lesions, the greater proportion has no doubt been induced by the same agent. The 85 deaths under the head of casualties have been reported principally as drowned, frozen, suicide, homicide, wounds, and injuries—the result, in a great measure, of intemperance. The aggregate of deaths in the table furnishing these data is 1,104, more than one-half of which are traced to that war against nature, which claims more victims than the most fatal epidemics—epidemics, the visitations of which are viewed with dreadful apprehensions, whilst this moral pestilence is continuously in our midst, almost unnoticed.

An important step in suppressing habits of inebriety among our troops has been effected by the abolition of the issue of spirits as a part of the daily ration of the soldier. When a man was obliged to swallow or throw away his ration of spirits, it was not to be expected that the best directed efforts of commanding officers could effect any thing towards suppressing the evil; and to convert temperate men into drunkards, it were difficult to invent a more successful plan. "To swallow nearly half a pint of spirits daily was," says Henry Marshall, Deputy Inspector General of Hospitals in the British army, "until the abolition of spirit-rations, a part of the duty of a soldier; and that this duty might be effectually executed, it was the usage of the service in many stations to have it performed under the immediate superintendence of a commissioned officer, who certified to his commanding officer that he had actually seen each man drink his drams."

Of dropsies, there are reported in the northern division 50 cases and 4 deaths, and in the southern 206 cases and 19 deaths; the ratio of mortality to the cases treated being the same. In the former, the annual average of cases per 1,000 is 2, and in the latter 8. As these effusions result mostly as the sequelæ of febrile affections, the difference in the two divisions may be ascribed to the relative agency of malarious causes; and no doubt, in some measure, to the more delete-

rious effects induced by ebriety in southern climates.

Of gonorrhea there are 1,900 cases reported, and no death. This disease prevails to an equal extent in both divisions. Of syphilis there

are 1,046 cases, one of which terminated fatally, being complicated with chronic diarrhæa. Of nyctalopia or hæmeralopia, there are reported in the northern division 18 cases, and in the southern 191. With the exception of our most northern and southern posts, this affection is almost unknown in the United States. As these statistics, however, include but one year of the data furnished by the troops serving in Florida, the prevalence of the disease is not fully apparent.

Of rheumatic affections the annual ratio of cases per 1,000 is, in the northern division 15, and in the southern 11. In 6,257 cases, but one death is reported. This subject, as well as the class of pulmonary diseases, has, however, been already fully investigated. In the results of the latter, Forts Independence and Monroe are here included.

In determining the general results in reference to the diseases just detailed, the deaths given under the last four heads of the table are not taken into the calculation; the total of the northern division being 223, and of the southern 722. It is found that in the latter division the ratio of cases is 50 per cent. higher than in the former; that the proportion of deaths to the number treated is nearly twice as high, (1 in 75, and 1 in 144,) and that the average mortality compared with the mean strength is as three to one.

The total of monthly deaths in each division, according to the post returns, is exhibited in the annexed table—

TABLE exhibiting the total of monthly deaths in each division.

. •	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Northern di- vision -	22	27	26	26	32	28	55	41	39	25	37	40	398
Southern di- vision -	77	76	74	61	84	105	117	144	160	139	115	82	1,234

This abstract shows not only the relative influence of the different months and seasons in the production of fatal diseases, but the comparative mortality of each division, the northern having an aggregate mean strength of 22,242, and the southern of 24,979. On a mean of 10 years, from 1829 to 1838 inclusive, the annual mortality, according to the post returns of the Adjutant General's office, is, in the northern division  $1\frac{\pi}{10}$  per cent., and in the southern  $4\frac{\pi}{10}$ , whilst the average of the two divisions is  $3\frac{\pi}{10}$  per cent. It is thus seen that the mean mortality of the posts is less than that by the regimental returns, the latter being  $4\frac{\pi}{10}$  per cent.

The mortality of British troops on the western coast of Africa shows that region to be decidedly hostile to European life. The most striking climatic features are extreme heat and moisture. "Upwards of 300 inches of rain," says Major Tulloch, "have frequently fallen during the

wet season; and more has been measured in two nights than falls in Great Britain during a year." The principal military stations are, Gambia, Sierra Leone, and the Isles de Loss. Of 1,685 white troops which arrived on this coast in 1822,-'3,-'4,-'5, there died from 1823 to 1827 inclusive, 1,298, and 387 were invalided. Of the latter, 17 died on their passage home, and only 33 of the remainder were, on inspection, found fit for further service. Of officers, 209 per 1,000 died annually, and 197 per 1,000 returned home invalided. On the average of healthy and unhealthy years, upwards of a fifth have died, and nearly an equal proportion have been invalided annually. So fatal is the influence of this climate on European constitutions, that two-fifths of the white troops are annually cut off by fevers, whilst the blacks are almost exempt. The natives, however, are subject to many diseases from which Europeans are exempt, more especially small pox. Among the black troops, on an average of 19 years, the mortality was only 3 per cent.

The mortality of British troops in the Australian Colonies, on an

average of 20 years, is only 14 per 1,000.

Having completed the investigation of each class of posts in reference to pulmonary diseases, the subject may now be considered in its general relations. The etiology of catarrhal affections has been beautifully illustrated in each system of climate. In the northern division of the United States, consisting of three regions, two uniform and one excessive, the annual ratios of the two former are 233 and 300, whilst that of the other is 552. In the middle division, the modified climate of the sea coast presents an annual ratio of 271, whilst that of the interior posts,—a region lying somewhat farther south,—is 290. In the southern division, as the posts of the first class are mostly on the Lower Mississippi, the annual average is 218; and in the other class, comprising the mild, insular climate of East Florida, the ratio is only 143.

It would seem, then, that sudden atmospheric vicissitudes combined with moisture do not excite a strong susceptibility to catarrhal diseases, else the sea coast and the lakes should give a higher ratio than the dry and cold atmosphere of the opposite localities. The results, on every hand, afford satisfactory proof that the ratios of these lesions are highest when the seasons are well marked, producing a decided impression on the animal economy, and that they are less dependent upon daily variations of temperature than upon its extreme range, as connected with the seasons.

To these laws no exceptions have been presented. The rule holds good, that wherever the seasons are violently contrasted the ratio of catarrh and influenza is highest, decreasing in proportion as the difference in the mean temperature of summer and winter grows less. As the mean winter temperature of the region of the lakes is three degrees higher, and that of summer is ten degrees lower, than the class of posts in the same latitude removed from the agency of large bodies of water, so the annual average of catarrhal diseases is found to be little more than half as high in the former as in the latter.

As the middle division is subject to the extremes of northern and southern latitudes, so it is found prolific in pulmonic lesions in general. The first class of posts, situated on the sea-coast and inlets between the Delaware and Savannah, gives an average of catarrh and influenza higher than that of the New England coast, where a low temperature prevails, as well as that of more southern latitudes, in which a high temperature predominates. Compared with the second class of this division, of which Jefferson Bairacks is the most northern, and Fort Jesup the most southern, post, the usual relation between mild and excessive climates is observed. Although the southwestern posts, considered in the aggregate, lie farther south than the other class, yet the annual ratio is as 290 to 271.

In the southern division, the ratio of catarrhal diseases is found the lowest. The second class of posts, situated in East Florida, a region possessing all the advantages of the most favored insular climate, presents an annual ratio of only 143; whilst the first class, in consequence of the modified atmosphere of the Lower Mississippi, holds an intermediate relation, (the average being 218,) in respect to the climate of East

Florida and that of the southwestern posts.

Having thus determined the law of climate, in regard to the annual average of catarrhal lesions, the quarterly ratios, as illustrative of the influence of the seasons, will next engage attention. Compared with the relative agency of the seasons, in the causation of intermittent fever, it is found that catarrhal diseases acknowledge this influence in a more eminent degree. This subject has been fully illustrated in the remarks appended to each class of posts. It has been seen that the ratios of the first and fourth quarters, in obedience to a general law, are always the highest, and the third invariably the lowest. The peninsula of Florida, which affords no marked distinction of seasons, exhibits an apparent exception to this rule, the third quarter having a higher ratio than the second or fourth; but this evidently arises from the circumstance, that amongst the causes which determine the prevalence of catarrhal lesions, those that are secondary in other systems of climate, become in this the primary ones. The general law developed in regard to the comparative influence of the seasons in reference to catarrh and influenza, is further confirmed by the totals given in each quarter by the seven systems of climate investigated. These stand as follows-

1st quarter.	2d quarter.	3d quarter.	4th quarter.
689	395	294	618

To a person laboring under chronic bronchitis, the advantage of a winter residence in a more southern latitude thus becomes at once apparent. If he can avoid the transition of the seasons—that meteorological condition of the atmosphere which maintains the first place among the causes which induce catarrhal lesions—he will do much towards controlling his malady. Let us suppose him on the coast of New England in the third quarter, the ratio being as low as 36, when the sudden transition of the season brings it up to 85. The consequences will inevitably be an aggravation of that disorder to which he

is predisposed; for the respiratory organs, even when healthy, are peculiarly susceptible, at this season, to abnormal action. Let us, on the contrary, suppose him gradually moving south with the change of the season, and the fourth quarter will find him in a climate whose ratio is even lower than that of the preceding quarter in the region which he had left. On the coast of New England, the ratio of the third quarter is 36, and that of the 4th is 85, whereas the average of the latter quarter in peninsula Florida is only 33. These are not isolated facts, but uniform results

obtained from ten years' observation.

The assemblage of morbid phenomena, usually designated by the term consumption, or phthisis pulmonalis, it is well known, may arise from various pathological conditions of the respiratory organs; but, as regards the advantages of change of climate, reference has been made only to chronic bronchitis, although, reasoning from analogy, the inference might be warranted, that similar effects would follow in other forms of consumption. As it is, however, the catarrhal or pituitous consumption of authors that probably constitutes the majority of the reputed cases of phthisis pulmonalis in northern latitudes, and as this is the only form that can be really considered remediable, the importance of determining the comparative influence of season and climate in rela-

tion to catarrhal lesions becomes more strikingly manifest.

The subject of pleuritis and pneumonia will next engage attention. As these lesions, so far as climate is concerned, are probably owing to the same causes, the results will be investigated conjointly. It has been seen that the laws in regard to pleuritis and pneumonia, as expressed by the numerical results, differ in some respects from those peculiar to catarrhal diseases. In the northern division, the modifying agency of the ocean and the lakes is not manifested in the results; but in all the other systems of climate, the laws of pleuritis and pneumonia are analogous to those of catarrhal affections. On the coast of New England, the annual ratio of cases of pleuritis and pneumonia, per 1,000 of the mean strength, is 41, on the lakes 49, and in the third class of this division, characterized by extremes of temperature, it is only 45. In the middle division, the difference between the two classes is very striking, the annual ratio of the first being 57, and of the second class 92.

In regard to the influence of the seasons, also, the law compared with that of catarrh and influenza will show some variation. In the three classes of the northern division, notwithstanding the third quarter is the lowest, the agency of the seasons is not very obvious. In all the others the difference is very striking; and the same result is exhibited by the totals given in each quarter by all the classes of posts. These averages, which give a fair expression of the relative influence of the seasons in the production of pleuritis and pneumonia throughout the

United States, stand thus—

1st quarter.	2d quarter.	3d quarter.	4th quarter.
138	84	58	86

Contrary to general opinion, it is found that the average of pleuritis and pneumonia is lower in the cold and variable climate of our northern

and eastern States than in the middle and southwestern regions of the United States. In catarrhal lesions, the same law obtains so far as the coast of New England is concerned. In pleuritis and pneumonia, the law in respect to contrasted seasons, as connected with catarrhal diseases, receives some modification. In the northern division, for example, the class of posts remote from large bodies of water has a ratio only half as high as that of the southwestern stations. It would seem to be a law, that in proportion as the high temperature of summer makes a decided impression on the system, do the lungs become susceptible to the morbific agency of the opposite season. At Fort Snelling, the difference in the mean temperature of winter and summer is nearly 19° greater than at Fort Gibson; but at the former the summers, notwithstanding the mercury rises very high, are short, whilst at the latter, the summer heats are both very great and long continued. In the northern States, as the animal economy is little impressed by the short summer, the annual ratio of pleuritis and pneumonia is not only low, but there is little difference in the ratio of the seasons; but at the southwestern posts, remarkable for high and long continued summer heats, the annual ratio is about twice as high as in the northern States, whilst the difference in the seasons is very considerable, the ratio of the third quarter being less than one-ninth of the annual average. This contrast is rendered still more striking by the fact, that whilst the ratios of the summer at our northern and southwestern posts are the same, the latter in the first quarter is nearly four times as high. At Fort Gibson, a point at which the mercury rises higher than at any other post, the averages stand thus-

1st quarter.	2d quarter.	3d quarter.	4th quarter.	Annual ratio.
71	19	9	15	112

On comparing the two classes of posts constituting the middle division, the general law in reference to the modifying influence of the ocean is very decidedly expressed. In the southern division, as the seasons grow less contrasted, the annual ratio decreases rapidly. In the second class, in which, for example, at Fort Brooke and at Key West, the difference in the mean temperature of winter and summer is respectively only 16° 02′ and 11° 34′, the lowest average is presented. In determining the laws of climate in reference to pleuritis and pneumonia, it seems necessary to consider not only the degree of contrast in the seasons, but the duration of high temperature.

In reference to phthisis pulmonalis, it would appear that the numericals results do not warrant any principles of general application. In the northern division, the third class, contrary to the general average of the class of diseases of the respiratory organs, gives the lowest ratio; but this difference, as nearly all the fatal cases of consumption are ascribed to the abuse of ardent spirits, is more apparent than real; for if the results of West Point, a command consisting mainly of officers and cadets, are excluded, the ratio of this class rises about 40 per cent. That the ratio of chronic bronchitis is obedient to the same laws which control catarrhal lesions, is very probable; but in regard to phthisis

pulmonalis in general these laws are not recognised. It is an important fact, that whilst the averages of catarrh and influenza, pleuritis, and pneumonia, in the first class of the middle division, are reduced nearly 50 per cent. by excluding the statistics of Fort Monroe, that of phthisis pulmonalis is increased. It confirms the opinion that this disease, although much under the influence of season and climate, is still more,

especially among troops, under the control of other agents.

In regard to the specific diseases composing this class, tabular abstracts have been exhibited, showing the annual average of cases and the mortality in each in every system of climate. The simple distinction of northern and southern regions of the United States has been made, the former comprising the three classes of posts embraced in the northern division, and the latter the four constituting the middle and southern divisions. It appears that, with the exception of catarrhal diseases, the ratio of pulmonary lesions is higher in the southern than in the northern regions. It is in the middle districts of the United States, however, that pleuritis, pneumonia, and phthisis pulmonalis, are most prevalent—the peninsula of Florida having the lowest average. In respect to the mortality, it is found, too, that the same law obtains, the deaths per 1,000 of mean strength being as under—

Phthisis pulmonalis. Pneumonia, pleuritis, and catarrh.

Northern region - -  $2_{10}^{1}$  - -  $0_{10}^{5}$  Southern " - -  $4_{10}^{4}$  - - -  $1_{10}^{8}$ 

The high mortality of our southern region is caused by the middle division of the United States, the average on our southern coast being comparatively low. Taking the statistics of the posts in East Florida and those on the Lower Mississippi alone, the ratio of phthisis pulmonalis is found to be only  $1\frac{\tau_0}{\tau_0}$ , and that of the remaining diseases of this class to be no more than  $\frac{\tau_0}{\tau_0}$ , per 1,000 of the mean strength. It is also ascertained that these diseases are of a more fatal tendency in the southern than in the northern region. In the latter, the average mortality from phthisis pulmonalis is 32, and in the former 42, per 100 cases; and as regards pleuritis and pneumonia, the difference is much greater, the ratio of mortality in the northern region being 9, and in the southern 26, per 1,000 cases. It is necessary to add, however, that this high mortality is limited to the southwestern stations, 33 deaths (out of 40, the total of the southern region) being reported in this class.

It is thus seen that, as regards pleuritis, pneumonia, and phthisis pulmonalis, the ratio of cases and deaths is greater in our middle region, including the southwestern stations, than at either extreme. In endeavoring to explain this result, much may, perhaps, be justly ascribed to the circumstance that the subjects are generally from our northern States or from Europe. As all causes by which the energies of the human frame are sapped conduce to the development of the tubercular form of consumption, so it may be safely asserted that the majority of cases of this disease at our southern posts, supervene upon febrile diseases, more especially in constitutions broken down by intemperance, bearing the

same relation to fevers as those other sequelæ-dropsy, jaundice, and the various chronic lesions of the viscera. In our reports from the southern and the southwestern stations, it is very usual to find death ascribed to phthisis pulmonalis supervening, more especially in cases of intemperate habits, on intermittent and remittent fever, dysentery, or other affections, which gradually exhaust the vital energies. On the the Lower Mississippi—a class of posts which presents the highest mortality—the average of phthisis pulmonalis is low, owing very probably to the circumstance that fevers are of the most fatal tendency, terminating either in speedy death or rapid recovery. At the southwestern stations, or those along our middle coast, the malarial poison acts more slowly, thus developing, by a gradual deterioration of the constitution, a tubercular form of consumption. It follows, then, that a continuous residence in the south, so far from being beneficial in this disease, will often hasten its fatal issue. This fact does not, however, in the least militate against the doctrine which maintains that advantage will be derived from change of climate in the way of a winter residence; and so far as regards the propriety of the measure in chronic bronchitis, when it is known that pulmonary diseases as a class are more under the influence of the seasons than intermitting fever, no reasonable doubt can be entertained.

In regard to rheumatic affections in general, few remarks are demanded. This disease, which is generally ascribed to sudden variations of temperature, conjoined with excess of moisture, is found to be less under the influence of atmospheric agency than is usually supposed. That these affections are controlled in some measure by the same laws which govern pulmonary diseases is, however, apparent. Were cold, moisture, and sudden alternations of temperature, powerful exciting causes, the highest ratio should be given on the coast of New England and the northern chain of lakes; on the contrary it is found that, like pulmonic lesions, the disease is most rife in the dry and cold atmosphere of the interior, characterized by an extreme range of the thermometer, and a striking contrast of the seasons. On the New England coast, the annual ratio of cases per 1,000 men is 110, in the region of the lakes 151, and in the opposite climate of this division 166. In the middle division this law is reversed, the averages of the two classes being 126 and 112; but if the results given by Fort Monroe, as in pulmonary diseases, are excluded, the annual ratio of the former is reduced to 93. The ratios of the seasons present no striking contrasts. The first and second quarters give the highest ratios; but, contrary to the law which governs pulmonary diseases, the averages of the third and fourth are the The totals given in each quarter, by the statistics of the whole United States, are as under-

1st quarter.	2d quarter.	3d quarter.	4th quarter.
249	219	201	202

Among 6,257 cases of rheumatic disease reported, only one death occurred.

The following abstract is taken from the report upon the medical statistics of the British troops—

	Jamaica.	Nova Scotia & New Brunswick.	Bermudas.	Malta.	Ionian Islands.	Gibraltar.	Canada.	Mauritius.	Windward and lee-	United Kingdom.	Cape of Good Hope.
Admissions from rheumatic affections annually per 1,000 of mean strength	29	30	33	34	341/2	38	40	46	49	50	57

The reporter directs attention to the fact that rheumatic diseases are less prevalent in the Mediterranean than in Canada and Nova Scotia, and that "though some of the provinces of the Cape of Good Hope have occasionally been without rain for several years, these diseases are more frequent in the dry climate of that command than in the West Indies, where the condition of the atmosphere is as remarkably the reverse: yet have extreme cold and atmospheric vicissitudes, coupled with excess of moisture, been assigned as satisfactory causes for their prevalence." In the northern division of the United States, it has been seen that rheumatic diseases, like those of the lungs, obey in some measure the inflexions of the isotheral and isocheimal lines.

[Note.—The latitudes and longitudes given in this book are generally taken from Tanner's Map of the United States.]

## ERRATA.

Page 29, continue the quotation from the word "command" down to the word "blast." Page 68, third line from bottom, for "6 feet" read "18 feet."

Page 264, twentieth line from the top, insert commma (,) between the words "simply" and "with."



## ERRATA.

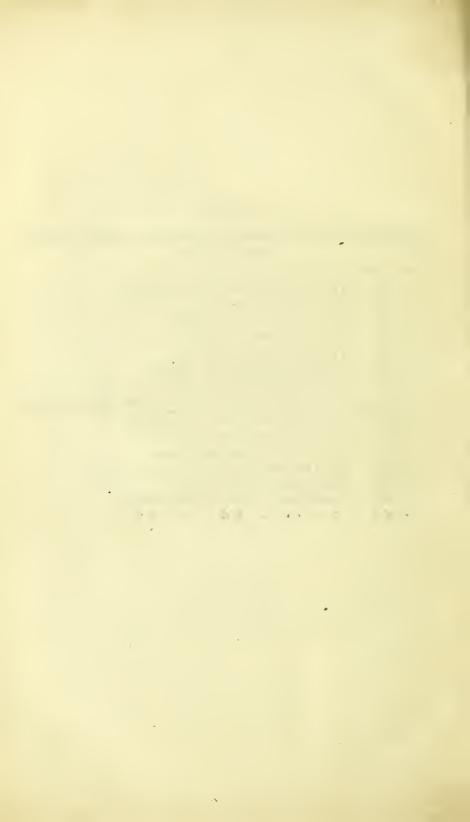
Since this work has been bound up the following additional errata have been discovered.

```
4, line 9 from top, for "has" read "have."
Page
                                 5 from top, for "consideration" read "consideration."
                5,
                        " 25 from top, erase the word "min," occurring twice.
" 24 from top, erase the word "min."
              11,
    66
              16,
    66
                        " 39 from top, for "reviewed" read "viewed."
              16,
                       " 24 from top, after "every" insert "other."
" 37 from top, for "may" read "nay."
" 4 from top, for "comw" read "coma."
              17,
    66
              25,
    66
              42,
                       "4 from bottom, for "shew" read "shews."

9 from top, for "asphixia" read "asphyxia."

15 from top, for "philogistic" read "phlogistic."

18 from top, for "strata" read "stratum"
    66
              98,
    66
            125,
           163, "18 from top, for 'stratu' read "stratum"
167, 2d & 3d lines from the top, for "cal. gr. 21, jalap 10," read "cal. gr. 10, jalap 21."
225, line 18 from top, insert a comma (.) for the period (.) after the word "details."
236, "18 from top, for "adematodes" read "ædematodes."
    66
    66
                        " 1, for "petite" at end of line, read "petites."
" 21 from top, for "frebile" read "febrile."
" 30 from top, for "Dr. Ball" read "Dr. Bell."
    66
            270,
    66
            271,
    « 274,
                       " 10 from top, erase the word "and."
          282.
    " 291, " 24 from bottom, for "west" read "east," and "east," "west."
" 299, " 13 from top, for "quarter" read "quartan."
" 322, " 9 from bottom, for "legislation," read "legislators."
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